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ABSTRACT

This research agenda examines ways to improve availability and access to public services for individuals living in rural areas. Five articles focus on general conceptual and methodological issues pertaining to research on services, and are applicable to a wide range of services such as health and education. Discussions concentrate on public service problems in rural areas experiencing chronic population loss, loss of basic industries, and aging population. "Settlement Patterns and the Provision of Services in the North Central Region" (Edward W. Hassinger) examines the unique historical role of American rural communities as providers of services for rural populations in the Midwest. "Spatial Aspects of Public Services in Rural Areas" (Roger J. Beck) attempts to reconceptualize relationships between the local area and rural service delivery, given the demographic and economic changes described by Hassinger. "Ecological Correlates of Rural Service Delivery: The Case of Rural Health Care" (Jack Geller) uses a human ecological perspective to conceptualize the problem of providing services for persons in sparsely populated counties. "Community Leadership and Decision-making in the Provision of Rural Public Services" (Janet S. Ayres) examines relationships between local rural communities and the formal structures of local government. "Community Social Organization and the Coproduction of Public Services in Rural Areas" (David J. O'Brien) proposes an approach to conceptualizing and measuring more effective relationships between rural communities and formal service providers. The final section outlines specific steps that can be taken to develop a coherent research agenda. Contains 118 references. (KS)

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A Research Agenda for Studying Rural Public Service Delivery Alternatives in the North Central Region

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A Research Agenda for Studying Rural Public Service Delivery Alternatives in the North Central Region

Prepared by:

David J. O'Brien
Janet S. Ayres
Roger J. Beck
Jack Geller
Edward W. Hassinger
Kevin McNamara

David O'Brien and Edward Hassinger are with the department of rural sociology at the University of Missouri; Janet Ayres and Kevin McNamara are with the department of agricultural economics at Purdue University; Roger Beck is with the department of agribusiness economics at Southern Illinois University at Carbondale; and Jack Geller is with the Center for Rural Health at the University of North Dakota.

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North Central Regional Center for Rural Development
216 East Hall
Iowa State University
Ames, IA 50011-1070
(515) 294-8321
FAX: (515) 294-2303

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Introduction

The purpose of this monograph is to develop a research agenda to study ways to improve the availability and access to public services for individuals living in rural areas. The discussion will focus on general conceptual and methodological issues pertaining to research on services. Nonetheless, it should be applicable to a wide range of specific service areas such as health, education and income maintenance, as well as consumer groceries and dry goods.

The chapters were written by rural sociologists and agricultural economists who make up the *Rural Services Networking Group.* This group, which was sponsored by the North Central Regional Center for Rural Development, met periodically during a two year period. These researchers and practitioners from different backgrounds exchanged ideas about how they might best contribute to an overall research strategy for addressing rural public service concerns. Thus, although the papers are written individually, they have been altered by the ongoing exchanges between the members of the networking group.

After their initial meetings, the members of the networking group made two decisions which affect the content of the chapters that follow. First, the group decided to concentrate on public service problems in those rural areas that are experiencing the greatest stress as a result of chronic population loss, loss of basic industry (both agricultural and nonagricultural), and the emergence of an increasingly dependent and vulnerable aging population. This meant placing less emphasis on issues facing rural areas experiencing growth due to suburbanization or an influx of retirees. As a result, the papers do not reflect the enormous diversity of rural life in America. This over-simplification, however, increased the opportunity of the group to identify key conceptual and methodological issues for dealing with service problems in rural communities that are most in need.

Second, and most important, a decision was made to treat as an empirical question, whether or not it is preferable to deliver a specific service to rural communities or to some larger geographical region. Here the group found itself immersed in a dilemma that has become all too familiar to students of rural life. While historically meeting individual and community needs may have been compatible and mutually reinforcing, conditions in rural America today are increasingly creating strains between individual and community *survival needs.* This is seen, for example, in the so-called "Wal-Mart effect" on rural

communities. The presence of a store with a selection of low-priced goods comparable to what can be obtained in metropolitan areas has enhanced the material quality of life of rural people in many ways. At the same time, however, the competitive advantage of Wal-Mart vis-a-vis the small town retail outlet has caused devastating effects on local economies. Thus, the same individuals and households whose opportunities for low cost consumer goods have increased markedly, now have to drive through downtowns that are often bleak and depressing in appearance.

Similar *trade-off dilemmas* occur in education and health care. The presence of a local community school, with its attendant basketball team, traditionally has been an important source of local solidarity. This was dramatized recently in the popular movie *Hoosiers* that was a fictionalized account of a true incident in which a small rural school beat all the odds and won the Indiana state basketball championship.

At the same time, of course, smaller schools may not have the resources to offer specialized courses in science and foreign languages. If we assume that participation in a viable community is an important reason for living in a rural area, then it is by no means an easy choice to give up an important basis of community life in order to achieve a limited objective, such as a second year language course. Fortunately, technological developments, such as satellite television communications, may provide another alternative which preserves the smaller school while creating an effective mechanism for teaching specialized courses.

In other service areas, however, trade-off dilemmas may not be so easily resolvable. In health care, for example, there are difficult choices about the wisdom of preserving local hospitals. Local rural hospitals are an important source of local employment, but frequently are ill-equipped to deal with the complex range of medical tests and procedures which are now considered routine in major metropolitan area hospitals.

Reasons for the Growing Ineffectiveness of Rural Communities as Public Service Providers

Several factors, some long-term and some fairly recent in origin, provide major obstacles to the survival of small rural trade centers as providers of public services. The first of these is population loss. Although some rural places, such as retirement/ recreation areas, have actually gained population, the most pervasive pattern in rural America, especially in the North Central region, has been a long-term population loss since the beginning of the twentieth century (Johansen 1991; Johansen and Fuguitt 1984, 1990).

The *normal conditions* that had been producing long-term population loss in rural areas, such as increased scale and capital requirements for agriculture, were exacerbated by the Federal Reserve's tight money policy during the mid-1980s. This policy had dramatic negative effects on middle-sized family farms and contributed to a substantial increase in bankruptcies. These bankruptcies, in turn, put further strain on already

weakened downtown businesses in rural areas. In addition, these policies had a substantial adverse effect on rural manufacturing, which further reduced employment opportunities for rural residents and contributed to more outmigration (Tienda 1986).

In agricultural-dependent counties in northern Missouri, for example, population losses from 1980 to 1990 frequently were more than 10 percent. In Mercer and Charitan counties the losses were 20.7 and 12.6 respectively (MYI 1991). Much of the loss in population was from outmigration of younger persons, leaving rural areas in the North Central region as-a-whole with substantially older populations. The proportions of persons 65 years or older in 1985 in metropolitan and nonmetropolitan areas in this region were 11.1 percent and 14.9 percent, respectively. The gap was even wider in Missouri, with 12 percent of the metropolitan population and 16 percent of the nonmetropolitan population age 65 or older (OSEDA 1991).

In the western portion of the North Central region, such as in rural areas of North and South Dakota, there are large numbers of "frontier" counties; that is, places that contain less than six persons per square mile (Hewitt 1989). Such low densities of population make it more difficult to attract services based on marketplace considerations, such as primary and specialty health care. The simple question is whether the cost of providing services in these places is justified?

A second factor, which is a direct result of the loss of population, is the loss of local tax revenue to support the provision of services. Thus, at the very time in which the portion of the population that is most capable of financially supporting services is leaving rural areas, the population that remains is increasingly dependent and in need of services.

Although there was some reduction in the gap between income in metropolitan and rural areas from 1965 to 1973, the gap between the two areas has actually widened in recent years. Average nonmetropolitan income was 78 percent of metropolitan income in 1973, but only 75 percent of metropolitan income in 1984 (Henry, Drabenstott and Gibson 1986). The proportion of poor in metropolitan areas in 1985 was 10.3 percent, while the corresponding figure for nonmetropolitan areas was 14.7 percent (U.S. Bureau of the Census 1986a).

It should be noted that government programs to make up for income deficiencies in households are much less likely to reach rural than metropolitan residents. The proportion of metropolitan area households receiving Aid to Families with Dependent Children (AFDC), the nation's largest income transfer program directed toward the poor, involves 4.9 percent of the metropolitan population, compared to 3.7 percent of the nonmetropolitan population, despite the fact that the incidence of poverty is much greater in rural areas (Cordes 1989:765).

In a recent study at the University of Missouri, it was shown that the proportion of households with *effective buying income* under $10,000 exceeded 30 percent in many northern Missouri counties where economies have traditionally been heavily dependent on agriculture. The figures for Mercer and Charitan counties, the two places with large population losses referred to earlier, were 34.1 percent and 38.5 percent respectively (MYI

1991:3). Economists project that this situation is likely to worsen further as structural changes in the American economy reduce opportunities for better paying industrial or agricultural jobs in rural areas, leaving new job opportunities in these places, by and large, in lower status service, laborer and farm laborer positions (Tienda 1986).

Moreover, the lower overall educational level of rural youth reinforces the disadvantage of rural areas in competing for *high tech* employers in the future. Despite the well-known problem of dropouts in inner-city schools, the overall level of education in metropolitan areas is still approximately one year greater than that in non-metropolitan areas (Tienda 1986).

Support for the view that the declining base for supporting services in rural areas is due to long-run structural problems in the economies of rural regions is found in the figures on employment and income, which are shown in Tables 1 and 2.

Table 1 shows that throughout the country, nonmetropolitan areas lagged behind metropolitan areas in employment growth and income during the period of 1977 to 1989. For all sectors, the growth rate for income during the period was 2.9 percent in metropolitan and 1.4 percent in nonmetropolitan areas. The corresponding figures for all sectors with respect to employment growth was 2.5 and 1.5.

Table 2 shows that the North Central region lagged behind other regions of the country, with growth rates of 1.4 percent and 0.7 percent respectively for income change in the metropolitan and nonmetropolitan areas of the region, and 1.6 percent and 1 percent, respectively, for employment growth in the metropolitan and nonmetropolitan areas of the region.

Overall growth rates in the economies of the North Central region have lagged behind those of the U.S. in both metropolitan and nonmetropolitan areas (see Tables 1 and 2). The differences in growth rates in employment between metropolitan and nonmetropolitan areas are not as wide in the North Central region as are the corresponding differences between metropolitan and nonmetropolitan areas in the country as-a-whole: 1.6 percent per year for metro areas compared with 1 percent per year for nonmetro areas in the North Central region, and 2.5 percent for metro areas compared with 1.5 percent for nonmetro areas for the country as-a-whole.

The same differences are found when comparing deflated growth rates in wage and salary income in metropolitan and nonmetropolitan areas in the North Central Region with corresponding metropolitan vs. nonmetropolitan differences for the U.S. as a whole: a 0.7 percent difference for the North Central states compared with a 1.5 percent difference for the U.S. as-a-whole. The inference can be made that rural and urban areas are more alike economically in the central part of the country than they are in other regions. Interestingly enough, this parallels another study which shows that the difference in informal social networks between metropolitan and nonmetropolitan areas is substantially less in the North Central region than in other parts of the country (Farmer 1993; O'Brien, Hassinger and Dershem 1992).

Persons employed in the retail trade sector in nonmetropolitan areas have suffered a real loss in income, particularly since the number of people employed in this sector has increased year-to-year. Manufacturing jobs, while declining in total numbers across the U.S., have continued to be a source of both employment growth and overall income growth in nonmetropolitan areas (see Tables 1 and 2).

It is evident that there has been a shift of employment and income from the Midwest to other regions of the United States. This shift is particularly apparent in employment and income growth of people employed in the construction trades, a sector dependent on overall economic activity to flourish. While employment growth has been evident in nonmetropolitan areas, real income growth has actually been negative, suggesting that with more people employed, there have been lower real wages and salaries for this sector on average.

Table 1. Average Annual Percentage Growth Rates in Income Levels and Employment by Economic Sector for the U.S., 1977-1989.

Sectors	Income[1]		Employment[2]	
	Metro Areas	Nonmetro Areas	Metro Areas	Nonmetro Areas
Agriculture[3]	-0.2	-0.2	-1.3	-1.8
Mining	-0.2	-2.4	+1.2	-1.4
Construction	+2.6	-0.3	+3.3	+1.4
Manufacturing	+0.5	+0.9	-0.2	+0.5
Transportation and Utilities	+1.6	+1.3	+1.8	+1.4
Wholesale Trade	+3.0	+0.7	+2.3	+1.1
Retail Trade	+2.0	+0.5	+2.8	+2.2
Finance, Insurance, Real Estate	+4.4	+0.7	+4.0	+3.7
Services	+6.0	+4.4	+4.7	+3.5
Government	+2.2	+2.1	+1.2	+1.2
All Sectors	+2.9	+1.4	+2.5	+1.5

Regional Economic Growth: A Comparison of Metropolitan and Nonmetropolitan Areas. 1991. U.S. Bureau of Economic Analysis.

[1] Deflated by the GNP Price Delator with 1982 = 100.

[2] Full and part-time employment.

[3] Includes farm operators and wage earners employed on farms, but not agricultural services.

Table 2. Average Annual Percentage Growth Rates in Income Levels and Employment by Economic Sector for the North Central Region[4], 1977-1989.

Sectors	Income[5]		Employment[6]	
	Metro Areas	Nonmetro Areas	Metro Areas	Nonmetro Areas
Agriculture[7]	-3.3	-1.7	-1.7	-1.7
Mining	-3.6	-3.4	-0.6	-0.1
Construction	+0.8	-2.0	+2.0	-0.1
Manufacturing	-0.8	+0.5	-1.2	+0.4
Transportation and Utilities	+0.5	+0.3	+1.1	+0.7
Wholesale Trade	+1.9	-0.4	+1.6	+0.6
Retail Trade	+0.6	-1.0	+2.0	+1.2
Finance, Insurance, Real Estate	+3.1	-0.1	+3.0	+2.8
Services	+5.0	+3.6	+4.0	+3.1
Government	+1.5	+1.5	+0.7	+0.7
All Sectors	+1.4	+0.7	+1.6	+1.0

Regional Economic Information System. 1991. Computer Tape. U.S. Bureau of Economic Analysis.

In fairness, it should be noted that there are some positive points to be observed. There has been, for example, positive employment growth in eight of the 10 sectors in nonmetropolitan areas. Only agriculture and mining have exhibited net negative growth rates. The sector with the greatest real growth in total income in nonmetropolitan areas is the services sector (see Tables 2 and 3). Even though the natural location for service industry growth could be considered to be the cities, there appears to be considerable potential for the growth of these businesses in nonmetropolitan or rural areas.

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[4] The North Central region consists of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin.

[5] Deflated by the GNP Price Delator with 1982 = 100.

[6] Full and part-time employment.

[7] Includes farm operators and wage earners employed on farms, but not agricultural services.

Another factor that has contributed to the declining state of services in rural areas, however, is the loss of federal and state support to make up for the high cost of providing services in those areas. The trend of government policy in the 1980s toward laissez-faire market driven considerations has penalized both rural and urban areas, with the primary beneficiaries being the more affluent, and hence more economically viable, suburbs. This trend has further eroded those institutional protections that formerly had offset some of the weaknesses rural areas possessed because of their lack of resources (Deaton 1989).

The deregulation of the American transportation industry, for example, has resulted in the loss of bus and airplane service and has caused dramatic increases in shipping costs in many rural areas. This not only reduces the overall quality of life for everyone in rural areas, but places difficult burdens on dependent populations, such as the poor and the elderly. These people oftentimes find themselves unable to obtain other services because they lack the private means of transportation to access them (Cordes 1989:773).

Lower federal medicare reimbursements to rural hospitals and physicians, along with population loss and escalating costs of high tech medical equipment, have led to the closing of vast numbers of rural hospitals and a decline in access to the services of obstetricians in rural areas (Cordes 1989). Rural residents often have to travel considerable distances to see a primary care physician, and even further if their condition requires the assistance of a specialist (DeFriese and Ricketts 1989). These problems are further compounded by the fact that rural areas contain larger numbers of persons who do not have health insurance (Rowland and Lyons 1989).

Finally, the burgeoning federal deficit and financial woes currently plaguing state governments make it unlikely that we will see any dramatic reversal of policies that would lead to *subsidies* for rural service provision.

The trends just described have created some obvious problems with respect to the availability and access of rural residents to public services. The papers that follow will focus on two areas in which rural social scientists can assist rural populations in dealing with these changes by reconceptualizing the way in which they study rural public service issues.

The first is the need to reconceptualize the relationship between "trade centers" and the delivery of social services, especially to recognize the limits of the traditional view of local communities as complete providers of services. The second is the need to identify new types of relationships between local citizens, on the one hand, and formal public service providers, especially governmental agencies, on the other, which maximizes the latent potential of grassroots involvement in service delivery.

These two areas of concern will provide the foci for the individual papers which follow. Listed below is a brief outline of the contents of these papers.

Contents of the Papers

Edward Hassinger's paper examines the unique historical role of American rural communities as providers of services for rural populations in the Midwest. He traces the development of *local trade centers* within the historical context of the westward migration of population in the 19th century and the unique form of land laws which established relationships between trade centers and open-country farm households. Hassinger goes on to describe how "Central Place Theory" could be used to describe the empirical reality of trade centers in the rural Midwest in earlier times.

He points out, however, that the traditional position of the small town rural trade center has been drastically altered by a variety of macro-level economic, political and social forces that have produced a regionalization of services and, at the same time, have dramatically weakened the position of small town service providers vis-a-vis their better off competitors in other places. Nonetheless, Hassinger suggests that the local community still plays a potentially crucial role in the delivery of services to rural populations, especially with respect to its position as an informal partner in the coproduction of public services.

Roger Beck's paper is an effort to re-conceptualize relationships between the local area and rural service delivery, given the kinds of changes described by Hassinger. Beck focuses on the development of formal analytical models of rural service delivery that will incorporate spatial measures and thus are sensitive to the importance of the local area, but which, at the same time, are sensitive to the changes that have been brought about by improved transportation, communication and other factors affecting consumers' options.

Beck begins with a re-assessment of Christaller's (1966) "Central Place Theory," which he contends contains some fundamental insights into relationships between cities, towns, villages and open countryside. Central Place Theory, Beck argues, is consistent with more contemporary economic approaches to service delivery issues, especially "Functional Economic Area Analysis" and "Agglomeration Economics." Beck's paper presents some specific suggestions of how a synthesis of classical Central Place Theory and these newer approaches can lead to a more effective measurement of rural service delivery needs and policy options.

Jack Geller's paper uses a "Human Ecological Perspective" to conceptualize the problem of providing services for persons in "frontier counties" (i.e., rural areas with extremely low population densities). Geller uses this model to explain the competitive disadvantages of low population density rural areas in maintaining health care facilities. In describing this situation, he also examines the role of federal policies, in this case guidelines for medicare reimbursements, which further weaken the competitive position of rural health care providers.

Geller describes two ways in which rural health providers have attempted to cope with their competitive disadvantages. These are "consolidation" and "cooperatives." The

experiences of implementing these models, Geller argues, suggest some general analytical approaches to the problem of adjusting rural service delivery models to deal with the exigencies of population loss and increased competition from urban providers.

The papers by Janet Ayres and David O'Brien suggest some directions for research that will assist policy-makers in developing practical strategies for linking the strengths of rural community institutions, organizations and informal networks with formal service providers in order to produce a better overall service product.

Janet Ayres' paper examines relationships between local rural communities and the formal structures of local government, with an emphasis on how these relationships may affect responses to the problems of access, financing and availability of services in rural areas. A central theme of her paper is that past models of public administration have been based largely on data from urban experiences that are inappropriate for rural areas.

Ayres goes on to examine ways in which the appropriate mix of citizens, experts and public administrators may be identified in a rural environment. A critical conceptual element in this process is the notion of *capacity building*. The concept of capacity building has been used for many years in the economic development literature, largely in reference to the development of new economic activities. Ayres contends that this concept also has applicability to the problem of identifying solutions to the problem of providing services in rural regions. This includes consideration of new configurations with respect to regionalization and special service districts. Central to each of these solutions, Ayres argues, is the need to deal with rural residents' fears about losing local identity.

David O'Brien's paper proposes a "coproduction" approach to conceptualizing and measuring more effective relationships between rural communities and formal service providers. This approach, which has been employed by political economists in the study of problems of social service provision and administration in metropolitan areas (Rich 1981) is suggested as a way to measure the actual and potential joint contributions of informal community social support networks and voluntary associations, as well as formal service providers to an overall service delivery program.

This approach highlights the importance of fully using the "social capital" (Coleman 1988) that is found in rural communities. The coproduction perspective points to the need for research to identify the direct contribution of informal rural social organization in providing services to individuals, as well as its role in providing either *bridges* or *barriers* between individuals and formal agency providers. This approach, then, allows researchers to identify both direct and indirect contributions of community social organization to health, mental health and other quality of life outcomes. Most important, this perspective provides a framework for using public resources more efficiently.

The final section of the manuscript provides an outline of specific steps that can be taken to develop a coherent research agenda to identify policy options with respect to different approaches to rural public service delivery.

Settlement Patterns and the Provision of Services in the North Central Region

Edward W. Hassinger

The North Central region consists of 12 states from east to west: Ohio, Indiana, Michigan, Wisconsin, Illinois, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas. Rural areas in the region exhibit considerable diversity. The Census Bureau distinguishes between the east north central region and the west north central region. Going from east to west, the region becomes more arid, more sparsely populated, and more dependent on agriculture. What is common in the region? A degree of commonality stems from the region's history of settlement patterns and the kinds of service delivery systems that have evolved from those patterns.

Settlement of the Frontier

The Continental Congress set the land policy and governance of territories for the new nation. The Northwest Territory, consisting of the area west of Pennsylvania, north of the Ohio River, and west to the Mississippi River, was composed of land ceded to the federal government by states claiming western lands. The Territory was opened for settlement by the Northwest Ordinance of 1787 which established the policy of governance of territories leading to statehood. Two years earlier, the Land Ordinance of 1785 had established rules for transferring land from the federal government to private holders. These ordinances set the pattern for westward development and greatly influenced the form of land settlement.

Among the provisions in the Land Ordinance of 1785 was a rule that before land could be opened for settlement, it must be secured from Indian tribes who claimed ownership, and it must be surveyed and recorded. The survey divided the land into rectangular sections, one mile on a side containing 640 acres, and into townships six miles on a side containing 36 sections. The Land Ordinance of 1785 also established the principle of using land (the nation's great resource) to subsidize public enterprises. Section 16 of each township was designated to support public education. Later, land was used to subsidize other services, especially railroads and colleges.

The Land Ordinance of 1785 set the price at $1.00 per acre. The smallest amount that could be purchased was a section. The price of land was doubled in 1796 to $2.00 per acre; in 1820, it was set at $1.25. At that time, the smallest amount of land that could be purchased was reduced to 80 acres. An 80-acre farm could be purchased for $100. Land legislation culminated in the Homestead Act of 1862 which provided a quarter section of land free to the claimant who built a home and lived on the land for five years. Cheap and free land drew the pioneer yeoman farmer west, from the eastern states and from overseas.

The rectangular survey left its mark on the settlement pattern of the region. Marion Clawson has observed that:

> The United States is a 'rectangular' country, where political and civilian, as well as property divisions, are in squares and oblongs like a haphazard checkerboard, with most of the lines running directly north-south and east-west. A traveler by road or train may notice some of these features in the Middle West or the Great Plains, but they are much more obvious from the air (1968:49).

Among the effects of the pattern of land division and transfer of land to the public was a unique type of rural community, especially with respect to the way in which services were provided. In Europe and in early New England, it was common for farm families to live in agricultural villages, from which they left each day to go to work in surrounding fields.

This traditional agricultural village pattern broke down in the United States, however, since land was distributed in rectangular shaped plots and families took up land on a moving frontier. Thus, the agricultural village gave way to farm families living on dispersed farmsteads. This, in turn, led to the emergence of trade/service centers which served the dispersed farming households. Open country farmsteads with accompanying trade centers became a well established cultural pattern by the time of the Homestead Act, which confirmed the pattern by requiring residence on the farms.

This was the frontier that inspired Frederick Jackson Turner's 1893 essay, *The Significance of the Frontier in American History.* In it, he stated his famous hypothesis that, "The existence of an area of free land, its continuous recession, and the advance of American settlement westward, explain American development" (Turner 1963).

This hypothesis has been criticized for claiming too much, but the conditions of the frontier did affect institutions and rural life, especially in the North Central region. Among the effects were self-reliant families, pragmatic approaches to problems, egalitarian social relationships, simple local organizations (schools, churches, governments), and distrust of experts. Paradoxically, on the frontier, people looked to the federal government for certain *services* such as land rights, protection and internal improvements.

Trade Centers

Trade centers were located at regular intervals to serve hinterland populations. The distance between them depended in part on the speed of transportation. The "team haul community" area identified by Warren Wilson (1912) was circumscribed by the distance that, given the conditions of the roads, a person driving a team and wagon could conveniently go from the edge of a hinterland trade area, do business in the center, and return home in a day. This was a distance of about four or five miles, placing trade centers about eight or 10 miles apart.

Trade centers and their hinterlands were the basis for Charles Galpin's (1915) delineation of rural communities. His first work was in New York state where he observed the direction of the lane turnings to identify community boundaries. His major work was in Walworth County, Wisconsin. There he selected eight services: banking, dry goods, groceries, village milk zones, high school, church, newspaper and library.

Local informants in each of the service areas were asked to locate their clients in the hinterland from a list that had been prepared by the researcher. These were then spotted on a map which connected households with places of service. Galpin constructed service-area maps for each of the services and then merged the dry goods and grocery service areas as the boundary of the rural community. He says:

> It is difficult, if not impossible, to avoid the conclusion that the trade zone about one of these rather complete agricultural civic centers forms the boundary of an actual, if not legal, community, within which the apparent entanglement of human life is resolved into a fairly unitary system of interrelatedness (1915:18).

A characteristic of the trade centers was the wide range of services they offered even though they served small populations. Typically, there would be a general store combining groceries and dry goods, a bank, a weekly newspaper, a market for farm products, a doctor, a school, churches, a shoe-harness maker and other services (Atherton, 1954). The trade centers, in other words, offered a rather complete range of services, and because of transportation conditions, had a somewhat protected trade area.

While there were differences in trade centers and some aspired to dominance, they tended to be like each other in range and level of services. They were located short distances apart and at quite regular intervals. Dillman and Beck (1988) have labeled the period before 1920 as the period of community control in rural America.

As was noted earlier, the trade-centered community became a cultural form that was repeated as settlements progressed westward. Knowing this, land speculators platted town sites ahead of settlement, and railroad builders anticipated town sites by setting out sidings at regular distances as tracks were laid.

The founding of Slater, Missouri, is an example of speculation in town building that was common in the Midwest. In 1866, Joseph Baker Jr. purchased 160 acres at $10 an acre from Judge Taylor Gilliam; the site of Slater. It was not good farm land because of its swampy condition and the price was considered high. Baker, however, anticipated *higher and better* use than for agriculture. A railroad was coming sooner or later to that part of Saline County; several false starts had been made, but the exact route was uncertain. Baker used his land as an inducement to locate major facilities at the site of his property. One account says he gave the Chicago and Alton Railroad (C&A) 80 acres for a division point, roundhouse and shops. Through his donations to the railroad and to public buildings and churches, Joseph Baker Jr.

> "...laid the foundation for a magnificent fortune. He owned the land on which the heart of the town now stands, and his income from sale of lots and houses grew each year and he was soon considered the wealthiest man in this part of the county" (Slater Centennial Historical Book Committee, 1978:4).

Incidently, the town was named for a major stockholder in the C&A Railroad who resided in the east and probably never set foot in the town.

Disruption of Trade-centered Communities

The settlement pattern established in the more humid east did not survive the more arid climate of the West. The Dakotas were not Ohio. The units of land of the Homestead Act were not sufficient to make a living in the western tier of states of the North Central region, and the trade centers became differentiated with more dominant centers serving wider areas of "outback" country. Walter Prescott Webb observed that:

> All the land laws of the United States had been drawn on the conviction that the land should be held in small quantities, ranging from 80 to 640 acres (1931:393).

Webb makes the further observation that:

> ... Our civilization and methods of pioneering were worked out east of the ninety-eighth meridian and were well suited to conditions there, but that when these institutions of the East undertook to cross into the Great Plains they broke down and had to be modified (1931:428).

Carl Kraenzel (1953), whose work in Montana is applicable to the western portion of the North Central states, emphasized the need to integrate the services of the more dominant centers with those of the simpler *outback* places. The harsher climatic conditions of the Plains in some ways portended the changes in service patterns that would develop in all the rural areas as trade centers became more specialized (differentiated), and therefore, more interdependent.

Technology was even more disruptive than climate to trade-centered community patterns. Transportation and service demands of rural residents changed so that trade-center service areas themselves became differentiated. Some trade centers were able to attract customers from greater distances and thus grew and offered more specialized services. Others became simpler in the services they offered, and some died. Along with these changes came less dependence on agriculture as the only economic base for trade centers.

Organizational ecologists view the changes in institutional organizations, of which trade/service centers would qualify, as responses to environmental demands (Hannon and Freeman 1977). The process is seen as the replacement of organizational forms rather than the adjustment of organizational forms to environmental imperatives. Hannon and Freeman contend that, "Adaptations of organizational structures to environment occur principally at the population [of organizations] level, with forms of organization replacing each other as conditions change" (1984:150).

There appears to be some support for this position as we view the loss of trade/service functions and the survival challenge to villages (Johansen and Fuguitt 1984). Also, new forms of consumer to services relationships suggest replacement of service delivery forms in response to changes in the environment. The survival of communities founded on trade may no longer depend on trade advantage, but on serving a different function such as an attractive place of residence (Johansen and Fuguitt 1984, 1990).

Central Place Theory

A model that addresses the differentiation and interdependence of service centers in an area is Walter Christaller's (1966) central place theory. This model depends on identifying the ranges and thresholds of goods within a given area. The range of a good is the distance a person will travel for it. The threshold of a good is the area a marketer of the good must cover in order to make it economically feasible to provide it. The ranges and thresholds of goods vary—a person will travel farther for fine clothing than for bread and a marketer of medical specialty services needs a larger area than a marketer of general medical services.

The result is a hierarchy of places in which a higher order place provides all the services of a lower order place, plus additional ones. Places are arranged spatially in a nesting fashion. Often they are labelled (although not by Christaller) hamlets, villages, towns, cities. There are more hamlets than villages, more villages than towns and so on up the scale.

Critics point out that real world places cannot meet all of the assumptions of central place theory, such as equal distribution of population and purchasing power throughout the region, an unvarying physical landscape, and uniform transportation that makes all central places equally accessible. The important question, however, is: does the model bear resemblance to the distribution of hamlets, villages, towns and cities in the North

Central region? There appears to be a certain hierarchical regularity in the location of places in the region. Brian Berry (1967), for example, observed in Iowa a hierarchy of service centers distributed in a manner similar to the central place theory pattern.

The system of central places based on the range and threshold of retail goods occupies most of Christaller's analysis. In addition, two other systems are identified. One is based on traffic routes (the traffic principle) and produces linear patterns of trade centers. The other system is based on sociopolitical considerations (the administrative principle). The latter takes on the characteristics of a planetary system in the form of an administrative district with a dominant central place (a capital) and associated satellite central places. This form is applicable to our later discussion of the distribution of public services (Christaller 1966:72-80).

Restructuring Service Relationships

Wilkinson points out that in many cases as the nation became more industrialized, small communities were left behind. Many of these places no longer were self-sufficient and did not have a population base sufficient to provide sophisticated and expensive service delivery systems. Thus, "Sparsity of settlement and distance from centers of growth have become major sources of socioeconomic problems in many rural localities" (Wilkinson 1991:64). Wilkinson contends that rural population dispersion is a barrier to the emergence of community—a locality in which people meet their daily needs and a local society based on interaction and social bonds (1991:65).

Johansen and Fuguitt (1984) examined the service functions and population change of American villages under 2,500 population. Their research raises questions about the applicability of central place theory to the present rural situation. They found deconcentration of population, with smaller places under 2,500 showing growth in the decades 1950 to 1980. Increases in the population of villages, however, were not accompanied by increases in retail services. They conclude that:

> As a whole, villages suffered a serious loss of retail outlets during the period of study [1950-70, 1975-80]. With over three-fourths of all sampled villages losing establishments between 1950 and 1970, the importance of the shopping center has clearly diminished. The village has also lost in the selection of retail activities that is normally associated with places this size, since over three-fourths of the functions listed in 1950 were found in fewer places in 1970 (1984:134).

Finally, it should be noted that the population increase in rural villages in the decades 1950 to 1980 was reversed in the 1980s, with rates of decline greatest in the Midwest (Johansen 1991).

Johansen and Fuguitt suggest that a process leading to a *dispersed city* form may be taking place in rural America. They note that:

> If such a process were occurring throughout American villages—and this seems highly plausible given the recent tendency toward deconcentrated settlement and increased mobility of rural residents—we should expect some irregularities whereby certain functions survive that serve neighboring communities while others, including more common functions, decline. This process places neighboring villages in a complementary position as opposed to the competitive situation posited by central place theory and thus differs sharply from the generally accepted model of retail location based on spatial competition (1984:110-111).

Growth Centers and the Larger Community

The break up of protected trade areas has led to the restructuring of rural communities. One form depends on a growth center as the core of a larger community with a hinterland that contains smaller and simpler service nodules. A version of the larger community is the functional economic area (FEA) as developed by Karl Fox. Working in Iowa, Fox envisioned FEAs as consisting of six to eight Iowa counties with a central city of a minimum population of about 25,000. A number of smaller towns and villages (some of them county seats) would be within the area, offering different levels of services. These places were identified as: full convenience centers (1,000 to 2,500 population), partial shopping centers (2,500 to 5,000 population), and complete shopping centers (5,000 to 25,000 population) (Fox and Kumar 1965).

Most of the central cities of FEAs would be nonmetropolitan in size. Compatible with Johansen's and Fuguitt's observations, the FEA takes on the characteristic of a spread-out city with farms being one type of enterprise in which people of the area are engaged. From the center to the points of diamond shaped areas, the distance would be about 50 miles; the commuting time, about 60 minutes.

The concept of the FEAs and Galpin's concept of trade-centered communities share a common feature of having their areas defined on the basis of where people go for services. The time-distance from edges of an FEA is similar to that of the "team haul" that patterned the location of early trade centers. It should be pointed out that this is a planetary model rather than a nesting model; this is a situation based on sociopolitical principles that were recognized by Christaller (1966).

Community development efforts often encourage cooperation among trade centers in an area. A conference was held in November 1991 by the North Central Regional Center for Rural Development to examine multicommunity collaboration. It dealt with the conceptualization of multicommunity collaboration, examined processes of creating collaboration among communities, investigated the results of collaboration, and examined state and federal policies and other elements of the external environment which might have bearing on multicommunity collaboration (North Central Regional Center for Rural Development 1991).

An example of multicommunity collaboration is found in the Lower Sioux Basin in South Dakota. Sioux Falls, at the center of this area, is portrayed as a "symbiotic community" with all its points within 60 miles of each other. A brochure designed to promote the idea of a symbiotic community says, "The Lower Sioux Basin represents a well defined area united by the Big Sioux River. The basin contains a major urban center surrounded by several satellite cities, numerous towns and villages, and a vast countryside. Its communication and transportation systems form a large area community" (Center for Community Organi ation and Area Development).

Although there has been considerable writing and some examples of multicommunity collaboration, this approach to rural public service delivery has not been widely practiced. Greater success, however, has been achieved in the coordination of specific services such as education and health services. Roland Warren (1978:163) points out that *units* of communities such as schools, churches and businesses, as distinct from entire communities, form extralocal relationships. Such relationships provide the basis for regionalization of services.

Regionalization of Services

There have been changes in the organization and delivery of services in rural areas. Today, consumers escape the boundaries of trade-centered communities and they may go to different places for different services. The community ceases to be the integrator of services, and services are fragmented. Regionalization of specific services is a possible answer to the fragmentation of services.

Regionalization of services should not be confused with regionalism. Regionalism connotes a geographical area with common socioeconomic and cultural characteristics. Regionalization of services, in contrast, is an organizational concept. For a given type of service (health, education, welfare, retail services, etc.), service units are differentiated to provide hierarchical levels of services (from simple to complex). The units are distributed geographically in an ordered manner and are integrated by some type of control mechanism (Hassinger 1982). Control may be the disciple of the market (unmanaged) or it may be ordered from a center (managed).

Unmanaged Regionalization

Examples of unmanaged regionalization are found in the area of health care services. In a common model, first contact health services are provided by primary care physicians that are located in local communities. Secondary level services, including midlevel surgery and other midlevel specialties, usually with community hospital support, are provided in fewer places. Super specialty services are provided in tertiary level medical centers which are more widely dispersed. Thus, there are primary, secondary and tertiary levels of medical services. There is specialization among the services, a spatial order to

them, and an interdependence among them which is the essence of regionalization of services. Traditionally, the various units of medical care have not had central organization or management. The mechanism for ordering these interorganizational relationships is professional referral (Hassinger 1982:97).

It should be noted, however, that health services increasingly are being provided in a managed form (See the paper by Jack Geller in this monograph). Other services approximate unmanaged regionalization. The latter is seen, for example, in retail outlets of clothing—retailers of everyday clothing, retailers of good clothing on racks, and retailers of designer garments. Similar patterns occur with weekly newspapers, area daily papers, metro dailies and national dailies (i.e., USA Today and The Wall Street Journal).

Regionalization of services means that services may not be available in the immediate environs of the consumer. In many cases, the consumer bypasses nearby services for those more attractive in quality, variety or price. Thus, a hospital in a place of 5,000 population is bypassed for a hospital in a place of 25,000 population, and a hardware store in a convenience center of 1,500 population is bypassed for a discount store, such as Wal-Mart, in a shopping center of a town with a population of 10,000. Moreover, regionalization of services may disrupt existing community service patterns as seen in the consolidation of schools and the concentration of health services.

Managed Regionalization

Unmanaged regionalization, developing from bottom-up consumer behavior, is one side of the service pattern. The other side is services that are directed and managed from service centers. Services, such as public health, programs for the elderly, welfare services, educational services, and franchised businesses are planned, distributed and administered from the top down. They typically are managed by bureaucracies of government, business and nonprofit organizations. Dillman and Beck note that in the period from 1920 to 1970, control shifted from the local community to the mass society. They observe that:

> Hierarchies became the model for businesses and social service agencies. Local representatives reported to regional representatives and so on up the corporate ladder. The federal government increasingly extended its reach in American life, from education to transportation (1988:29).

The shift to a centralized control and managed regionalization of services is illustrated in social assistance programs. Until well into the 20th century, the federal government played a relatively minor role in the provision of social assistance. A watershed change occurred, however, in the 1930s. In response to the Depression, the Roosevelt Administration initiated a number of programs aimed at alleviating the economic crisis. Among them were the Works Progress Administration (WPA), a program to employ unemployed and needy people in useful work, the Resettlement Administration

(RA) to administer programs of resettlement and aid to low-income farm families, and the Civilian Conservation Corps (CCC) to provide employment and vocational training for youth in projects connected with conservation.

The early New Deal programs were of an emergency nature. The Social Security Act of 1935 became the basis for the national government's program in assistance services. The Act provided for two types of assistance. One was a public assistance program which included support for the elderly, children and disabled. Means tests were generally applied. The other was a social insurance program for the elderly and surviving dependents with wide, now almost universal, participation. Through amendments, the coverage was broadened and the program was expanded to cover disability and health care for the elderly (Medicare). Public assistance programs (but not the social insurance programs) are filtered through state agencies. Programs in other social service areas have been initiated and/or expanded, including those in income maintenance, health, mental health and aging.

Under federal guidelines and financing, states have developed complex social service organizations. These reach local communities through local offices and facilities. They provide for services as varied as Head Start, senior citizen meals, home weatherization, and drug and alcohol counseling. Locations of services are based on conscious decision-making, although this is not to say that political considerations do not enter into these decisions. An administered regionalization of services often is put in place with lines from state to region (area) to local unit and in some cases to subunits of the local units. In the North Central states, local units of state agencies are often located in county seats, with the county becoming the catchment area for the program.

Under rational criteria of bureaucratic organization, there is a tendency toward consolidation of services and expansion of service areas. It is something of a paradox that, from the national level managed regionalization of services may be regarded as decentralization of services, but from the local level, it may be regarded as centralization of services. This paradox is not confined to social services. The question of whether the location of a Wal-Mart in an area is moving the service down the service scale (Wal-Mart stores are not located in large cities and are found in relatively small trade centers) or up the service scale, depends on the location from which the observation is made.

Consumer Access to Services

Service bureaucracies require specified performance and accountability in their local units. Thus, there are performance guidelines and record keeping requirements. Therefore, local units tend to be organized in the bureaucratic mold. This may present problems of access for local people resulting from their rejecting red tape and categorical requirements. Rural people, in the tradition of the frontier, may be suspicious of experts who provide the services, and regard them as outsiders who impose bureaucratic regulations. Furthermore, they may be unskilled in dealing with bureaucracies. Incumbents of positions in local units (e.g., counselors, social workers, public health nurses, etc.) have

linking roles between the bureaucracy and the local community. In these roles, they need to understand the local as well as the bureaucratic culture.

Given the organizational and ecological characteristics of rural services, access to them is a serious problem. There are barriers to obtaining services, both from the local community which may lack services and resources, and from service organizations which may be remote and unresponsive to local needs. Whether or not services are located in the immediate community, the first efforts to obtain them are at the community level, often in consultation with families and informal groups. Access, it is clear, is not simply a matter of distance or availability of services. It is a matter of resources, information, and skill in entering and participating in an increasingly complex system. Consumers have taken more initiative in providing services through use of lay networks and voluntary associations in the *coproduction* of services with formal organizations (See David O'Brien's paper in this monograph).

There is no perfect solution to the dilemma of public services in rural areas. We need to reconceptualize the service relationships of consumers of services to trade centers established in a period of limited mobility. Consumers need to be well informed as they co-produce services with formal service agencies. In a changed rural environment, the village center, rather than being the locus of comprehensive services, may be the locus of demand for services. Not a service center but a *use* center in the process of coproduction of services.

Spatial Aspects of Public Services in Rural Areas

Roger J. Beck

The purpose of this paper is to discuss an approach that incorporates a spatial dimension in rural service delivery. The economic geography of rural services is an important, but often ill-defined, dimension of rural development policy. Incorporating the conceptual foundation of *central place theory* (Christaller 1966) and its empirical derivative, which defines regions using a *functional economic area* approach (see for example Fox and Kumar 1965, Jansma and Goode 1976, Berry and Garrison 1958), can help to view the spatial dimension of rural services within a researchable framework.

While changes in transportation modes and improved roads and highways have reduced the time and effort required by rural people to take advantage of services offered in more urban places, low population densities in rural areas necessitate a careful examination of the location of service delivery points and the trade-offs between economies of size and distances from consumers of rural services to providers of these services. While these ideas have received considerable attention in the rural development field, benign neglect seems to prevail in policy making arenas. This paper will use the principles of economic logic and reasoning to approach this problem (Bonnen 1975).

Conceptualizing the Spatial Dimension

Central place theory (Christaller 1966) is a conceptual approach to understanding the spatial dimension and functional interdependence of cities, towns, villages and open countryside. Using this spatial construct, service delivery areas can be defined that incorporate the idea that larger cities provide those specialized services rarely needed, while smaller cities provide all services of smaller towns and villages plus some of the higher order services found only in larger cities. Frequently used services are found in smaller towns and villages.

As an example, the village welder or blacksmith can make routine repairs to farm equipment, the equipment dealers in town can replace a part that is in stock, and the parts distributor in a nearby city provides infrequently demanded parts that the local dealer finds too expensive to keep in stock. There are, however, certain specialized repair services that are used sporadically and which only the manufacturer can provide. There may be only a half-dozen or so of these most specialized places in the nation that can repair or replace a part that breaks down on an infrequent basis. Thus, a hierarchy of central places or core delivery towns and their tributary areas can be defined (Berry and Garrison 1958).

The economic and social viability of the central place is dependent upon providing services at a competitive price not only for its inhabitants, but for those people living in surrounding, less densely populated areas. Reilly's Law is derived from the gravity model and is used to identify market boundaries (see for example Batty 1978 and Reilly 1931). The gravity model postulates that social and economic interaction between two towns varies directly with respect to their mass or size and inversely with respect to their physical distances.

Galpin (1915), for example, concluded that the limit of the trade zone of an agricultural community formed the boundary of an actual, perhaps even a *legal* community. An important point, though, is that Galpin delineated these trade centers in Wisconsin prior to the emergence of the automobile, which replaced the horse and wagon as the chief mode of transportation from farm to trading center. The intent of this paper is to build on these earlier theoretical and empirical works and to apply these concepts to prevailing situations in rural areas, even though the boundaries have become less clearly delineated for a variety of economic, political and social factors.

From an economic perspective, the blurring of these boundaries is relatively straight forward. The automobile and improvement of roads permit rural people to search over a larger area for the combination of price, quality and choice they desire. In fact, the so-called "Wal-Mart effect" is an explicit although harsh example of how rural retail trading boundaries have changed. The market analysts who recommend locations of Wal-Mart retail outlets take into account existing trading patterns, consumer preferences, the location of competing retail outlets, and travel times of concentrations of potential customers to the central point of the recommended location (Greenhut 1971).

Although this market area approach has contributed to the centralization of retail and wholesale trade centers, the integrity of central place theory has not been compromised; the market areas have simply been enlarged due to economic conditions (see for example Henderson and Wallace 1992, Stabler 1987). Social and political allegiances have also shifted geographically, typically being reinforced by economic forces.

This approach to spatial analysis (see for example Galpin 1915, Berry and Garrison 1958, Edwards 1981, Stabler 1987a and 1987b) is consistent with the system of *functional economic areas* as developed by Fox and Kumar (1965) and described by Richardson (1978). This system explicitly introduces a spatial element in location analysis and economic performance of a region.

Incorporating a spatial approach recognizes that population and economic activities are concentrated geographically, but these nodes do not contain all households and businesses. In addition, there is some economic interdependence among these economic centers or nodes. The degree of interdependence among these centers helps to define geographically a central place and the smaller, less diverse economic centers that are critical to the continued economic viability of that place. Again, these functional economic areas can be defined in terms of public school areas, retail trading areas, or by labor market areas.

The latter method defines a functional economic area in terms of a central city that hires labor, and the labor market area is defined by the outer limits of commuting to work in the central city. The central city concept as used here does not mean the same as it may in urban economics texts; it is simply the economic center that attracts people for shopping purposes, and a place for earning a wage or salary.

This way of thinking about rural community services can incorporate the concept of *agglomeration economies*. For economic, social and political reasons households, businesses and providers of services tend to cluster or agglomerate toward a center. This is seen most vividly in the European context where the village contains the mayor's office, the school, the doctor, the cafe, the general store, the telephone office and households of storekeepers, truck drivers and other wage earners, with farmers clustered in some fashion around the center. In stark contrast to the European village, surrounded by open fields, is the midwestern landscape of open fields, dispersed settlements of dwellings and barns, and small rural towns.

Richardson (1973) provides an excellent description of agglomeration economies and offers easily understood examples. Proximity to other households and businesses enables communication, transportation, and other service functions to facilitate economic and social interactions. In the context of rural service provision, agglomeration economies are the reason that, in aggregate, location decisions made by businesses, households and local institutions affect the overall functioning of the rural place.

Those decisions, to move, expand, relocate, enter or exit from a place, even when made in isolation, have a multiplicative effect on the fortunes of the local trade center. This effect can be described in several ways, but the fact is that the whole (community) is greater than the sum of its parts, which are classified as businesses, households and local institutions (see for example Sargent 1982, Eberts 1990, Bender 1987).

Location decisions made by individual households and businesses are a function of both agglomeration or clustering forces and decentralization forces. Transportation costs tend to centralize services, as businesses and households wish to locate near other businesses and households to share resources and amenities (post office, eating places, service stations, health services, repair shops and the like). There are other economic and political forces at work, however, which tend to disperse rural businesses and households. Some of these forces include a desire to avoid high rents and taxes, as well as environmental and zoning regulations.

On net, it is important to decipher which, and to what degree, these forces dominate locations, expansions, contractions and the continued existence of businesses and households at a specific location. The *range* of a good or service offered at these centers is also affected by the combination of clustering and decentralization forces. The range is defined as the farthest distance a dispersed population is willing to go to buy a good or service offered at a central place (Christaller 1966).

The latter point means that particular kinds of goods or services will have a *geographic domain* or range which differs according to price and income demand elasticities as well as locations of the surrounding population. A consumer is more likely to search longer and over a wider area for the appropriate combination of price and service when purchasing an automobile than when purchasing gasoline for the automobile. Paying for the car requires a much greater percentage of the monthly budget than purchasing gasoline. Thus, the price of a car is dependent on the asking price of dealers in different *central places* as well as the income level of the purchaser. For this reason, some goods and services are only found in higher order places.

When analyzing the spatial dimension of rural service delivery, the economic costs and benefits of providing that service at alternative central places must be in constant tension with the administrative or political units that deliver publicly provided services. Decision makers and local government officials wish to serve the population in their jurisdiction with some acceptable mix of service level and price. As people make service purchasing decisions comparing such attributes as cost, array of choices, quality of service, geographic access and other amenities, the spatial area defining the central place and its tributary is constantly evolving and shifting as these attributes of the service respond to national and international economic conditions.

As these purchase decisions shift across space in aggregate, in the short run, the provider of the service may not be pleased as people respond to higher prices at the local place by reducing quantities demanded. Consumers may be shopping over a larger geographic area to achieve an appropriate level of cost, time and choice. Revenue to the bypassed provider may be reduced to the point where prices must be increased even more to compensate for the reduced level of expenditures on local services. At this point, the service may no longer be provided locally due to cost differentials.

Operationalizing the Spatial Dimension

There are several ways that a spatial dimension can be incorporated into research on rural service delivery. Gravity models have been used to analyze interactions among populations at two distinct points in space. As an example, the number of telephone calls originating at a place i and terminating at a place j is hypothesized to be a direct function of the size of the respective populations at places i and j and to vary inversely (with populations held constant) with the distance between the two places. Mathematically, this expression is of the form:

$$TC_{ij} = \frac{P_i P_j}{D_{ij}^{\lambda}}$$

where

TC_{ij} = number of telephone calls originating at i and terminating at j
P_i = population at place i
P_j = population at place j
D_{ij} = measure of distance between i and j
λ = parameter reflecting cost of overcoming distance

The total number of calls terminating at place j can be summed across all places i and is expressed as:

$$TC_j = \Sigma_{i=1}^{I} TC_{ij}$$

This theoretical formulation can be used to delineate market areas for specific kinds of rural services. For the kinds of services that most people wish to consume on a regular basis, the location of that service should be at a natural center toward which dispersed populations tend to gravitate. This method can provide some precision to these interactions and, just as Galpin noted the direction of ruts from the farm lane to the gravel road to delineate trade areas, this model can reveal the natural centers.

This concept can be used to define, for example, service delivery areas for the total number of health care patients expected to be served by a facility in a central place. One of the benefits of using this mathematical formulation is that as roads become better, as transportation modes change (e.g., helicopter), and as access to the facility becomes less of a burden, the parameter λ can be modified to reduce the effect of the distance factor, and in essence the economically feasible service area increases in size. Also, as economies of scale manifest themselves in the production function associated with transforming inputs into the desired output, the cost of providing the service is reduced so that the service area is again enlarged, other factors remaining constant.

Finally, several such gravity models can be generated for each type of service being offered at place j. Consistent with central place theory, this permits spatial modeling of a *higher order* type of service delivery function according to the size of the market. Said differently, the appropriate service area for specialized producers is expected to be larger in size than for other kinds of health care services.

A second way that spatial issues have been incorporated in service delivery is to define areas consuming the service and areas producing the service. Deficit consumption areas must *import* the service and surplus production areas must *export* the service. Health care analysts sometimes portray data that indicate ratios of physicians per thousand persons by county. Typically, metropolitan areas have high ratios and rural areas exhibit differing levels of lower ratios. The implied conclusion is that if all counties had equal ratios, then everyone would be equally served.

In an economic sense, counties with low ratios are importing the service because consumers of medical care transfer earned income in their underserved area to the production area. Likewise, areas with high physician/population ratios are exporting the surplus production to the underserved areas. In a realistic sense this may well be an economically optimum arrangement because of agglomeration economies and economies of size criteria. That is, studies that report physician/population ratios and imply that all areas *should* have equal ratios, may well be missing important economic realities of rural service delivery.

Consider the provision of highly technical business services as a second example. A large city may offer a plethora of specialized business services, and in a sense the city exports these services to surrounding areas that must import these services. A spatial equilibrium is reached when the cost of trading the exports and imports is greater than the benefits after accounting for travel time costs of both consumers and producers. This is usually accomplished by using a constrained linear model (linear programming or, probably more precisely, a form of integer programming.) This technique has been used by Duncan (1976) which shows current hospital utilization patterns as well as projected patterns based on expected future population levels.

A problem with this approach of incorporating economic geography is that the notion of central places including ranges of the good or service, and market potential measures across the smaller communities comprising the programming area, are difficult if not impossible to quantify and incorporate. Since it is a sectoral model, the usual aggregation problems are present and the classification of sectors is arbitrary.

The key issue is that regions and sectors that are used by regional economists do not conform to the concept of a natural trading center as revealed by consumers in their day-to-day purchase decisions. Second, the economic sector of health care services cannot distinguish among the medical services classified as primary, secondary, and tertiary. Consistent with the descriptions of central place theory, specialized services are expected to conform to their own unique service delivery areas. This detailed information cannot be incorporated in a highly aggregated linear programming or input-output model.

Defining Rural Service Delivery

The viewpoint from a rural development perspective is quite different from the viewpoint of those who focus on delivering the service in an efficient fashion. If the point of view is from the individual enterprise and its optimum location, scale of operation and delivery decisions, and how these decisions affect its profitability, a different set of spatial issues are incorporated in the analysis than if the point of view is from the perspective of access to adequate service delivery for all individuals residing in the geographic area of interest. While economic issues of comparative costs, travel time, revenues and profitability of the enterprise are of major importance, it may well be that in a social welfare sense, overall welfare is maximized when public funds are used to complement

purely private economic resource allocation decisions. The service area that best meets the supply (cost) criteria as well as the access and willingness-to-pay criteria for each identified service must be identified.

The important questions are which services at what level and at which locations are critical so that the area can function as a viable economic, social and political entity? After the basic services are provided, a second question is, which services follow increases in income and are what economists would term income elastic in nature? This suggests that there is a threshold level of service delivery that meets some generally accepted level of social well-being. Once that threshold level is reached, higher per capita income levels are expected to elicit a greater diversity, including improved quality and quantity of offered services. Identifying these threshold levels of service for rural areas is an important research objective.

The Time Dimension

To this point, the discussion has focussed on the spatial issue in a static sense. That is, the demanders and suppliers of services, while varying across the spatial dimension, are assumed to be fixed at a point in time. The population dynamics of the last several decades, however, make this view unrealistic. Smaller rural towns lose population and as the rural population changes in terms of age structure and composition, the spatial dimension of rural service delivery becomes critical. In most cases, the issue is not one of excess demand, but one of excess supply and high average total costs of supplying the service per unit of population. The average total cost becomes prohibitive with few, if any, suppliers of the service. To reiterate, there are probably service areas corresponding to each level of service. As a first step in the research process, useful statistics that describe cost per unit of service corresponding to alternative service delivery areas could be developed. These data could be presented at alternative points in time corresponding to historical patterns of population and employment changes and alternative scenarios for projected levels of demand.

Measurement and Related Issues

Economists have long accepted the postulate that the demand for a private good is represented as one in which quantity is a function of price and the two are inversely related. However, estimating demand for services with many nonmarket characteristics is not so straightforward. Once the requisite foundation is in place for providing the service, the provision of the service takes on many public good characteristics and it is difficult to analyze demand for the service within a typical price/quantity framework. Basic economic concepts and many of the measures used by economists in analyzing the organization and operation of firms in the private sector can also be applied to problems in the organization and provision of public service for rural areas (see for example Gessaman 1981, Deacon 1977, Duncan 1976, Jones).

In order to estimate demand for these services in a spatial manner, public expenditure models, median voter rules, analyses of voter behavior, and travel patterns for services can be used as proxies registering demand. These techniques are necessary to explain in a more rigorous manner the quantity and quality of services demanded at alternative points in space and the amount consumers are willing to pay.

Lancaster's approach (1966) to consumer theory can be used to examine a set of characteristics of a service, each component of which has a price or value attached. In the Lancaster model, all goods and services possess objective characteristics that are important to the consumption choices made by individuals. These characteristics have objective properties. For instance, a provider of banking services can have an ATM, another may not. Retailers often compete in terms of nonprice characteristics such as hours and services provided.

Lancaster theorized that it is the characteristics of goods and services themselves that people want, and they are willing to pay for these characteristics. The various characteristics help to satisfy some kind of *want* on the part of the consumer. One of the characteristics of the good or service is a spatial element. To be more precise, an individual in the rural countryside wishes to consume the characteristics of a health care provider that includes location, quality of service, price of the service and third party payment plans. Monetary values can be attached to each characteristic of the service by observing behavior on the part of providers and users of the service by using proxies registering demand for these characteristics. The economic trade-offs among locations, services provided and costs can then be identified.

What is the value of the exercise? Correcting the persistent economic problems of the nonmetropolitan regions is a task that has occupied academics, policy makers and private businesspeople for decades. The primary policy choices have been characterized as being of two types—a transition policy and a development policy (Drabenstott and Gibson 1987). A transition policy assumes that nonmetropolitan areas will remain at a competitive disadvantage to metro areas and thus excess nonmetro labor should be given assistance in moving to places where employment opportunities are expanding. The development approach suggests that providing adequate services to rural people not only contributes to equity and general policy goals, but a careful examination of factors affecting the location of services in rural areas can also contribute to overall efficiency of service provision and consumption.

Analysis of demand and supply of services across space is often overlooked, but must be included in the overall analysis if we are to understand how rural areas can continue to function as viable economic entities while assuring individuals living there access to public services.

Ecological Correlates of Rural Service Delivery
The Case of Rural Health Care Services

Jack Geller

There is little question that delivering quality medical care to many rural areas of the United States is becoming increasingly difficult. Rural hospitals are closing in unprecedented numbers, chronic shortages of physicians and other health professionals are seriously affecting access to care, many rural volunteer emergency medical service (EMS) units have staff that are poorly trained and have grossly obsolete equipment, and the physical plants of many rural hospitals appear to be aging as fast as the populations of the communities in which they reside (OTA 1989, 1990). It is no wonder that Wright and Lick (1986) have characterized rural America as a "Health Disaster Area."

This paper will examine the changes in the rural health care delivery system from a human ecological perspective. Emerging from plant and animal ecology, the human ecology paradigm looks at the ways in which human populations organize in order to maintain themselves in a given environment (Hawley 1986). Changes in social organization (or adaptations) are seen as a function of changes in the population and in the environment. Using this perspective, this paper will suggest that significant changes in the rural population and environment have rendered the social organization of many rural service sectors ineffectual, uncompetitive and in a general state of decline. Furthermore, only through adaptive change can these rural service sectors once again adequately service the rural population.

The human ecology paradigm is a useful framework in which to organize causal factors as well as variables of interest. Additionally, although the focus of the examination is on health services, much of the rural service industry in general is in similar transition and decline. Consequently, generalizations to other service sectors are not difficult to make. Finally, this paper will conclude with an examination of several contemporary alternative rural health delivery systems that may serve as more appropriate adaptations in the current rural environment.

In this examination, variables of interest (or ecological correlates) have been placed into three categories: population correlates, environmental correlates and technological correlates.

Population Correlates

It is important to point out that unlike the history of the 19th century, which can be characterized as the history of the settlement of the rural United States, the 20th century clearly represents an unprecedented rural-to-urban migration. Spurred on by advances in agricultural and manufacturing technology, as well as war, millions of rural residents have migrated to urban centers to improve their economic well-being. Those who leave rural communities are not a representative cross-section of the local population. Rather, it is the young who leave to improve their economic chances, leaving the old and those who are tied to the land behind.

According to the 1990 census, during the past 10 years the state of North Dakota (which had 652,717 residents in 1980) lost 13,917 residents, or approximately 2 percent of its population. The loss, however, was not spread equally across the state. Many of the state's urban areas had significant population increases, while most rural areas experienced significant population declines (U.S. Bureau of the Census 1991).

In fact, if all North Dakota counties were categorized by their population densities, one finds that counties with less than six persons per square mile (the criteria to be designated as a "Frontier County" by the Bureau of Health Care Delivery and Assistance) lost on average 15 percent of its population between 1980 and 1990. During this same period, counties with densities between six and 25 persons per square mile lost on average 9 percent of their population. North Dakota's urban counties, with densities greater than 25 persons per square mile, gained in population an average of 7 percent throughout the same decade.

These trends suggest a continuing depopulation of North Dakota's rural communities. This has significant implications for rural service delivery systems in the state. Rural service areas are shrinking, economies of scale for rural service providers are becoming more difficult to reach, and in many cases, it can be argued that autonomous service areas have completely disintegrated.

In addition to the disintegration of rural service areas, the characteristics of the rural population have changed. While approximately 11 percent of the U.S. population is age 65 and over, 13 percent of the rural population is age 65 and over (U.S. Bureau of the Census, 1989). In many communities in the North Central region, more than 30 percent of the population is over the age of 65.

Furthermore, a look at the population pyramid of a typical rural county in the North Central region reveals that a significant percentage of the population is under 18. In many rural communities, 50 percent to 60 percent of the population is dependent—which means they are not participating in the work force and contribute little to the revenue base of the community. This is particularly problematic as the dependent population generally uses local health and social services to a greater extent than other segments of the population (OTA 1990).

In addition to being older, rural residents historically have earned less than their urban counterparts. Median family income in rural areas in 1987 was approximately three-fourths of the average urban family income. One out of every eight urban families lived in poverty in 1987, while the corresponding figure for rural areas was one out of every six. This discrepancy is even more striking when examining the elderly population. While 13 percent of the urban elderly fell below the federal poverty level, 21 percent of the rural elderly fell below the poverty threshold (U.S. Bureau of the Census 1988).

Associated with this is the fact that rural residents are less likely to be insured for their health care costs. In 1987, 17.4 percent of rural residents had no health insurance (Short et al. 1989). Even for those who are eligible for Medicaid, insurance coverage is consistently lower among rural residents. One study showed, for example, that among those living below the poverty level, 44 percent of all urban residents but only 38 percent of rural residents were covered by Medicaid. Only six percent of farm families with incomes below the poverty level received Medicaid benefits (Rowland and Lyons 1989).

Not surprisingly, the general health status of rural Americans is lower than that of their urban counterparts. Studies have found rural populations to have higher rates of chronic conditions (which tends to correlate with the greater percentage of elderly). Additionally, when asked to rate their overall health status in national surveys, rural residents are less likely to respond excellent or good and more likely to respond fair or poor (National Center for Health Statistics 1989).

In summary, when examining population correlates, one sees that rural service areas for health services are shrinking while the need for local health services is increasing. In other words, although the absolute number of rural residents is declining, those that remain tend to be predominantly high users of health services (the very old and the very young). Furthermore, due to their health status and income, these rural residents are typically less able to financially or physically transport themselves to nonlocal health care providers when access to local services is reduced or eliminated altogether.

Environmental Correlates

In the human ecology paradigm, environmental correlates are those factors that are external to, but influence, the social organization or population under investigation (Hawley 1986). When examining the rural service delivery system, the number of potential environmental correlates is virtually endless. For this reason, the discussion will focus on only a few of the most influential environmental correlates and their impact on the rural health service delivery system.

Warren (1978) defines vertical or extra-local ties as the structural and functional relationships of local systems to larger regional systems. In the case of rural health care, the place to begin to understand these relationships is urban tertiary care centers. One of the primary impacts that urban tertiary care centers have on rural health care systems is the loss of the local patient base. Over the past two decades, more and more urban centers

have opened rural clinics which serve as a mechanism to channel patients to urban centers for hospital services, thereby bypassing the local hospital. This trend serves to further exacerbate the preference of a significant percentage of rural residents for urban health facilities.

Several studies have examined the loss of market share among rural providers to urban facilities. Hart, et al. (1989) examined the loss of rural hospital market shares to urban facilities in the states of Washington, Montana, Alaska and Idaho and found the loss ranged from a high of 60 percent to a low of 40 percent. These loss figures are relatively low compared to recent insurance claims data made available through the North Dakota Health Care Data Act. In an analysis of 85 percent of all hospital insurance claims originating from rural areas, only 26 percent of the rural beneficiaries were discharged from small rural hospitals. Twenty-three percent were discharged from larger rural referral centers and 51 percent were discharged from large urban hospitals. Ludtke et al. (1990) found that rural physicians lost an average of 40 percent of their patient base to urban physicians.

The loss of market share experienced by rural health care providers seriously undermines the economic viability of these services. Studies have suggested that those most likely to use nonlocal providers are younger and better insured (Samli and Uhr 1974, Hawes and Lumpkin 1984, Ludtke et al. 1989). It must be realized that these regional ties have created significant environmental changes in rural health care delivery and have allowed rural consumers to act on their apparent preferences for care in regional urban centers.

Unfortunately, the consequence of this selective outshopping for medical services is that rural facilities find their patient base predominantly filled with elderly Medicare beneficiaries. In North Dakota, approximately 85 percent of the discharges from small rural hospitals are Medicare patients. Due to the downturn in the rural economy throughout much of the 1980s, the percentage of indigent care being provided in rural areas has greatly increased. A consequence of these factors has been a 290 percent increase in rural community hospital closures throughout the 1980s (American Hospital Association 1990).

Due to the disproportionate share of Medicare beneficiaries being served by rural providers, an important environmental correlate is the structural relationship between rural providers and the federal Medicare reimbursement system. In 1983, Medicare changed its reimbursement policies from a "reasonable cost" basis to a "prospective payment" system. In the prospective payment system, a fixed payment is made for a given diagnosis (e.g., gall bladder surgery) regardless of the costs of treatment incurred by the provider. The reimbursement rate is an averaged rate assuming that some surgeries will incur more costs and some less, but over the long run the rate will equal costs.

This system has not worked particularly well for rural providers for several reasons. First, any system based upon average costs assumes a volume large enough for averaging to work. Because the number of gall bladder surgeries in many rural hospitals is so small, one particularly difficult case with complications can put a hospital in the red. Second,

large urban hospitals that have a smaller percentage of Medicare patients can shift losses from Medicare patients to non-Medicare patients. Among rural providers, where 70 percent or more of the volume is Medicare, this *cost-shifting* is not an option.

Finally, due to the way reimbursement rates are calculated, rural providers (both hospitals and physicians) receive a lower payment for the same services provided in an urban setting. This is due to a weighing factor in the reimbursement rate that takes into account average area wages (known as the Area Wage Index). This and other weighing factors cause reimbursement differentials between rural and urban facilities providing the same services to be as high as 40 percent.

The combined effect of two significant changes in extra-local relationships (i.e., the increased competition from regional centers and the changes in federal reimbursement policy) has shaken the economic viability of many rural health delivery systems. In a recent analysis of North Dakota's 25 small rural hospitals, the average total operating margin was -8.2 percent. Given these figures, it is clear that unless changes are made, many of these facilities will be unable to continue to provide services to their rural residents (North Dakota Hospital Association 1991).

Technological Correlates

Technology is defined as the instrumental aspect of culture (Hawley 1986). Probably the most influential correlate in this category has been the rapid advances in transportation and communication technology. Advances in transportation technology (e.g., the development of the interstate highway system) have greatly increased rural residents' access to urban services and amenities. Thus, many rural communities can no longer sustain relatively autonomous service areas and are finding that they are competing on a daily basis with urban providers. Just as rural retailers find themselves competing against urban-based national retail chains, so too must rural hospitals compete against urban tertiary facilities.

Advances in communications technology have transformed the culture of rural America. Especially with the development and expansion of cable TV, rural residents can now more fully share in all aspects of contemporary urban culture (music, dress, hairstyles, etc.). These changes, however, also allow urban businesses to aggressively expand their marketing area in a cost effective manner. While providing many advantages, these advances in transportation and communications technology have further eroded the service area once possessed by rural businesses.

A final technological correlate specific to health care is the advances in medical technology. Although still considered by some an art, medicine to many is clearly a science. In fact, in many medical specialties and subspecialties, the reliance of very sophisticated (and expensive) biomedical equipment is overwhelming (e.g., radiology or anesthesiology).

Most physicians in the U.S. are trained in large urban teaching hospitals and learn to use and rely on this sophisticated biomedical equipment. This means that they often are unprepared to practice in small rural communities that typically do not have this kind of equipment. The end result is that the physician shortage in rural areas will continue and the average age of rural physicians will continue to be older than their urban colleagues (Kindig 1989).

In summary, the variables that have been categorized to be congruent with the human ecology paradigm have a significant impact upon the rural service delivery system. The end result has been a deterioration of the rural service area, an emerging pattern of rural *outshopping* for goods and services, and the undermining of the economic viability of the rural service delivery system. Unless there are significant shifts in the population, environment or technology, rural services that continue to operate as if they still have an autonomous market area will likely fail. This means that policy-makers and persons living in rural areas will have to realize that new adaptations will be required to cope with these environmental, technological and population changes.

Alternative Rural Service Delivery Systems

Rural service providers are faced with the task of trying to provide access to services in communities where market areas are shrinking, often below viability thresholds. Under these conditions, the most common response is to reconfigure the geographic boundaries of the service. This strategy is seen as a way to increase the population in the service area in the hope of achieving reasonable economies of scale. School consolidations and city-county cooperative arrangements for law enforcement and administrative services are examples of this approach. In rural health care, examples of this strategy are hospital consolidations, hospital/clinic consolidations and the formation of hospital cooperatives and alliances.

In the case of consolidations, two or more health service providers pool resources and merge as one service unit. Again, the hoped for results of such consolidations are larger, more efficient service providers, offering a greater diversity of services to a larger service areas. Success with this strategy, however, is rare. First, it must be realized that the advantages of consolidations in essential mandated local services, such as education and law enforcement, are not easily matched in more demand-driven services, such as health care. Second, due to proximity factors between institutions, enlarging rural service areas may not be an effective strategy for achieving desired economics of scale.

Consolidation of a service means, in effect, a redefinition of community. In school consolidations, for example, the consolidated service provider often is renamed to reflect the new service area and is usually well received and accepted after a short adjustment period. In the case of hospital cooperatives, however, the record of successes is not easily documented. These cooperatives are usually developed to help achieve economics of scale, but each member of the cooperative organization remains as an autonomous service

unit. Economies of scale are achieved through joint purchases and joint service contracts (e.g., contracts for biomedical equipment service), but member hospitals are still faced with the negative effects of the ecological factors discussed above.

An alternative strategy is the development of satellite structures that look like hub/spoke arrangements. One of the most successful arrangements of this kind is the United Clinics of Hettinger, North Dakota. Located in the Southwestern corner of North Dakota, United Clinics has a service area of 15,000 square miles (the size of a small New England state) that cuts across four state borders. At the hub of structure is a 13 physician-owned clinic with six satellite clinics.

These satellite clinics are usually in communities that cannot sustain the services of a full-time resident physician (typically 300-800 population). Consequently, satellite clinics are operated five days a week, with physicians from the service hub commuting each day to the satellites. Such satellite structures are innovative health care delivery systems that have proven their ability to provide primary medical services to communities whose service areas are unable to sustain such services on their own.

Similar satellite structures are being encouraged by the federal government through the Essential Access Community Hospital Program. Through this program, states have the opportunity to develop rural health networks among rural hospitals. These networks will have at their core or hub a larger rural hospital which is designated as an Essential Access Community Hospital (EACH), and several smaller rural primary care hospitals.

Although all hospitals in the network remain somewhat autonomous, the rural primary care hospitals will be restricted to six acute care beds and a maximum 72-hour length of stay. Consequently, only simple, uncomplicated procedures will occur in these facilities, with all other patients being stabilized and transferred to the EACH hospital or to a tertiary care facility, depending on the severity of their conditions.

A final approach that holds some promise, incorporates the ideas of coproduction, or the joint participation of community residents with health care providers in the reconfiguration of local health services. Several examples can be found in the northwest states of Oregon, Idaho and North Dakota. These projects, which have been funded by private foundations, use community meetings and citizen survey assessments as inputs in a communitywide strategic planning process. These mechanisms are used to identify: (1) what local services residents want, (2) what services local residents are willing to use, and (3) what residents are willing to pay for given services.

Although these projects have yet to be evaluated, the inclusion of local residents in the reconfiguration of services offers hope for developing viable local delivery systems.

Conclusion

This paper has used a human ecology framework to discuss and categorize variables that have an impact on the delivery of health care in rural areas. Although rural health care delivery has been the focus of this discussion, it is suggested that the demographic, environmental and technological shifts in rural areas that have affected health care have also affected retail trade areas, educational service areas, and virtually all rural public service sectors.

The preceding has suggested that obsolete rural service delivery systems must adapt to the current ecological parameters or face the certainty of failure. In this regard, several adaptive strategies have been presented. The consolidation model has been most widely used, especially among school districts and municipal administrative units. However, if one were to place all of these strategies on a continuum, consolidation may be the most intrusive to traditional rural community life. Innovative strategies that assist in reconfiguring the rural service area, and yet keep local services intact, may hold more promise than consolidation of services. The inclusion of local residents in the development of comprehensive plans for the coproduction of services with professional providers is an important breakthrough in thinking about rural service delivery. The need for quality leadership to sort out and act on these issues in rural areas is needed now more than ever.

Community Leadership and Decision-making in the Provision of Rural Public Services

Janet S. Ayres

Community change and problem solving are never ending challenges to rural community leaders. This decade has brought with it rapid change and issues of such complexity and magnitude that the situation prompts many questions regarding the future of rural communities. Central to these challenges is the ability of rural community leaders to provide, finance and manage public services. The decentralization of public functions, the high technical demands of many public services, state and federal mandates, rising costs, and stagnant revenues have magnified public service challenges in rural areas.

This paper focuses on local governments as providers of many rural services. Although the services provided by local governments vary greatly from one community to another, decision making regarding the allocation of resources for the provision and management of public services remains central to the domain of local elected officials.

The discussion that follows focuses on three major perspectives. One deals with the roles of the citizen, technical expert and professional public administrator in public decision making and management. Another perspective focuses on capacity building in rural communities for more competent decision making. The third perspective is a regional approach to the provision and management of rural services. Research questions are raised regarding what is known in this area as it applies to rural communities. Most research to date has concentrated on urban situations, models, and data that may or may not fit the rural environment. More research is needed regarding the provision, financing and management of rural public services. The differences found between urban and rural communities may justify special policies to address unique rural problems.

Unique Characteristics of Rural Communities

One in four Americans live outside Metropolitan Statistical Areas (MSAs). Sixty-eight percent of all governments are located outside MSAs (Honadle 1981). As Honadle (1981) points out, there are unique characteristics of rural areas that have implications for the provision and management of public services. These characteristics include:

Isolation

Geographic isolation, or distance, affects the delivery of public services in several ways, including (1) low utilization rates for services, (2) inadequate response time for ambulance, fire and police services, and (3) separation of service delivery professionals from their colleagues. This has implications for how rural services should be organized and delivered.

Population Density

With sparse population, the per unit cost of providing many services is quite high. It is also hard to justify providing certain services at all for the few people who need them. Rural areas typically provide general kinds of services to the majority of people (as opposed to specialized services that are provided in urban areas). Thus, low population density affects the cost, quality and availability of certain services.

Mobility

Transportation is a serious problem for public service delivery in rural areas. Not only is distance a factor, but rural areas have a high incidence of one-car families, elderly persons, poverty and handicapped people. This suggests the need for either delivering services where people live (e.g., using mobile units) or providing public transportation to and from places where public services are provided.

Scarcity of Fiscal Resources

The lack of fiscal capacity in rural areas has several causes: rural poverty, an urban bias in intergovernmental grant programs, local ignorance of programs intended for rural areas and of how to apply for them, insufficient staff capability to seek out grants, and insufficient attention to alternative revenue sources.

Lack of Expertise and Human Resources

Rural areas have serious shortages of expertise in many public service areas. In part, this problem is a consequence of inadequate fiscal resources. It is also related, however, to the lack of training opportunities to develop and maintain qualified personnel. In addition, small scale makes it uneconomical and unnecessary for each small community to employ a full-time chief executive. Consequently, rural governments rely heavily on elected officials and volunteers. The implications of scarce human resources include understaffing of many service functions, incompetently performed jobs, overworked personnel, low quality and quantity of rural public services, and inattention to long-range planning.

Personal Familiarity

Because rural areas have small populations, there is a tendency for "everybody to know everybody." This lack of anonymity has both advantages and disadvantages in the provision of public services. The advantages pertain mainly to the personal attention that can be given to meeting individual needs. The disadvantages pertain largely to a

reluctance by rural residents to seek certain services such as those in the areas of mental health, drug addiction or treatment for alcoholism. Personal familiarity also opens the possibility of subjectivity on the part of decision makers.

Resistance to Innovation

According to Honadle (1981), there is a tendency for rural citizens and public agencies to resist innovation, as well as a pervasive conservative attitude toward providing nontraditional services. The explanations offered for why rural areas resist innovative public services are that new services will cost too much, that they are unnecessary or will not work, and that individuals or the private sector are better providers. Consequently, rural areas lag behind urban areas in providing certain nontraditional services.

Lack of Ancillary Services

There is a lack of support services to complement other public services which means that the public service sector must work closely with private sources of assistance—family, friends, religious organizations, volunteers—to provide *complete* services.

The distinctions between rural and urban governments are significant because they operate differently as organizations. Yet research models, information and even data sets are urban oriented. Sokolow (1982) points out that a comprehensive and accurate set of data about small local governments is needed before a reformulation of some of the basic notions of organization can be developed. Cigler (1984) also notes that little research has been done on "rethinking the foundations of rural or small town policymaking or capacity building."

The Roles of Citizen, Technical Expert and Professional Public Administrator in the Planning and Delivery of Rural Public Services

The planning and delivery of public services in urban areas is managed primarily by career professionals whose full-time jobs are the management of municipal affairs. In contrast, the affairs of rural communities are managed by public-service minded citizens who work part-time for the community. There is a debate in the literature about the roles of citizens, experts and professional public administrators in local decision making and public service delivery. Although most of the research has been conducted in urban areas, this has some relevance for rural areas as all communities have become more dependent on specialized, technical assistance.

Some researchers have pointed out that the issues confronting our society are so complex and require such a high level of technical knowledge that *professionals* or *experts* have risen to the forefront of dealing with community problems (DeSario and Langton 1987). There are, however, some important criticisms of this trend, especially of

the view by some public administration professionals that public service recipients are *clients*, which can be seen as a form of professional paternalism (DeSario and Langton 1987, Radin and Cooper 1989, Boyte 1990).

The extreme of the professional expert view is that citizens or *clients* are assumed to be mere consumers of the technical expertise of the professionals. Critics underscore the point that citizens have the right and obligation to affect their own community. They view the client perspective as one that lacks clarity about, and appreciation for, the need to relate to the citizenry in a collaborative decision making manner. On the other hand, a standard criticism by professional public administrators is that average citizens are not capable of making decisions on complex public policy matters.

This debate, which began with the Founding Fathers, concerns the role of the citizen in governance. The issue is whether professional administrators and service providers have administrative superiority based on their specialized training, expertise and knowledge, or if citizens have enough know how to play a major role in collaborative problem solving and decision making. It has become a debate of *power over* the citizens vs. *power with* the citizens, or, put another way, "technocracy" vs. "democracy" (DeSario and Langton 1987). It is a discussion relevant to our modern society, but it is particularly relevant in rural communities that are more dependent on volunteer involvement. As Sokolow (1982) points out, in small governments elected officials are both legislators and administrators, responsible for both making policy and managing programs.

The discussion on the role of the citizen in local decision making includes the extent to which citizens are involved and the methods through which they are brought into public decision making. Disillusionment with political processes in the 1960s and 1970s brought new forms of citizen participation that were heightened by federal government mandates on local participation. Public administration researchers examining urban situations have attempted to structure citizen participation to maximize effectiveness. Crosby et al. (1986) present a model of *citizen panels* whereby the decision making process is structured so it can be evaluated to determine the effectiveness of citizen input. The authors conclude that the average citizen can do an effective job of decision making if the hearing format is properly structured for them. This model provides an opportunity for citizens to have a voice in local matters, but it does not involve citizens as active participants.

Susskind et al. (1983) distinguish between three models of citizen participation: (1) paternalism—when government decision making is centralized and citizen participation is discouraged; (2) conflict—when government decision making is also centralized, but citizens openly confront the authorities over control of policies; and (3) coproduction—when decisions are made through face-to-face negotiations between decision makers and citizens. Susskind feels that this latter model is an important part of power sharing which necessitates a social knowledge transfer between both parties where each gains important information about issues in the community. The coproduction model not only serves as an educational process for local residents, but can also politicize issues to mobilize a previously unorganized population.

Harry Boyte, director of Project Public Life at the Hubert H. Humphrey Center in Minneapolis, is a leading advocate of *citizen politics,* which promotes the active involvement of citizens in public policy. His perspective is closely aligned with Susskind's (1983) coproduction perspective. Boyte argues that effective political problem solving today is too complex and too many-sided to be left to political leaders, experts, governments, or large systems alone. New ways to involve citizens in the definition of problems and in the design and implementation of solutions are essential.

He believes that the growing authority of expert-dominated approaches to decision making and knowledge has weakened the power of citizens. Experts tend to define and diagnose the problem, generate the language and labels for talking about it, propose the therapeutic or remedial techniques for problem solving, and evaluate whether the problem has been solved. The goals in public policy making have shifted from public deliberation and problem solving to service provision for clients, using a marketing or service language. Boyte argues that it is necessary to have the active involvement of citizens as public actors where they reclaim responsibility and develop the power and organizational means to seriously address public issues.

Five approaches to decision making have been identified by Vroom and Yetton (1973) and Thomas (1990:437). These are:

1. **Autonomous Managerial Decision** — the manager solves the problem or makes the decision alone without public involvement.
2. **Modified Autonomous Managerial Decision** — the manager seeks information from segments of the public, but decides alone in a manner that may or may not reflect group influence.
3. **Segmented Public Consultation** — the manager shares the problem separately with segments of the public, getting ideas and suggestions, then makes a decision which reflects group influence.
4. **Unitary Public Consultation** — the manager shares the problem with the public as a single assembled group, getting ideas and suggestions, then makes a decision which reflects group influence.
5. **Public Decision** — the manager shares the problem with the assembled public and together the manager and the public attempt to reach agreement on a solution.

These different approaches raise an important research question. Are there some public service decisions that are best made by professional experts and other decisions in which the citizens should be involved? In what types of situations are certain decision making approaches optimized for the public good?

Building Capacity in Rural Communities for the Planning and Delivery of Public Services

Honadle (1981) defines community capacity as the ability to anticipate and influence change, make informed, intelligent decisions about policy, implement policy, attract and absorb resources, manage resources, and evaluate current activities to guide future actions.

This model is illustrated in Figure 1. She contends that capacity is reflected in community institutions. Capacity building means institutionalizing or embodying strengths in an organization to carry out the above mentioned functions.

Figure 1. Community Capacity Framework (Honadle 1981:578).

Another perspective on rural capacity building is the concept of "sustainable communities," which was developed in Canada (Hilts and Fuller 1990, Dykeman 1990, Fuller et al. 1989). The goal of sustainable communities is to enhance the ability of communities to act toward a better, self-defined quality of life over time. External linkages are not seen as threats to community identity and existence, but as assets by which goals can be attained to further develop the community (Richards 1984).

Fuller et al. (1989) describe sustainable community development as: (1) satisfying present and future needs, (2) using an integrated and holistic approach, (3) being a social process as well as a set of technical goals, (4) having strategies that vary by location, and (5) failing if left totally to the experts.

Sustainable communities have a positive image of themselves that allows adaptation and innovation within a changing environment (Dykeman 1990). These communities make a conscious effort to maximize social and economic inputs without losing their identity or ability to act collectively. The sustainable community may be a single municipality or may cross jurisdictional lines to form a critical mass for action.

Another view on the capacity of local government is offered by Reid (1984) who argues that there are three fundamental factors that contribute to a local government's ability to perform its functions effectively: (1) adequate authority to make decisions over its realm of responsibilities, (2) fiscal capacity or its ability to raise revenues through taxation and other means, and (3) management capacity to determine how effectively it uses its power and how wisely it allocates its resources.

Cigler (1984) points out that while citizen involvement in the management of local public services may be in the best tradition of our country's democratic heritage, there are disadvantages. Rural communities often lack the "management capacity" to deal with the challenges they face. Several solutions are offered to assist local governments in accomplishing more effective management of local government affairs. These include: direct technical assistance, circuit-riders, and leadership and management training to develop internal organizational skills.

Technical Assistance. In this approach, local government uses outside sources to obtain the specific skills, usually technical, when needed. This can be an effective and efficient method of getting skills for a specific project or for a limited time. However, it seldom improves long-term management needs (Brown 1980). Technical assistance may be provided by private consultants, area service agencies, state personnel or university faculty. Some communities hire consultants on a retainer basis for technical assistance so that they are available when the community needs them.

Circuit Riders. Circuit riders are state agency personnel assigned to provide long-term technical assistance on an ongoing basis to an assigned group of communities within the state. State personnel provide services to rural clients, train local officials and provide administrative services such as grant writing, grant management, budgeting, financial management and other public administrative functions.

Leadership/Management Training to Develop Internal Organizational Skills. In contrast to the technical assistance approach, leadership/management development emphasizes the training of local leaders to resolve community problems. It does so by focusing on the education of local government officials and community leaders rather than handing them fixed solutions to specific problems. Honadle (1981) advocates less direct involvement of consultants, circuit riders and similar external transient actors in day-to-day administration, and more emphasis on transferring their knowledge, skills and insights to local leaders. Sokolow (1982) also emphasizes the need for skill training and educational programs to expand the administrative capacity of rural governments.

Intergovernmental Cooperation. Intergovernmental cooperation is an approach that is designed to compensate for the problems of scale facing rural communities (Baker 1990). In the mid 1960s, state and federally mandated regional councils of government provided a way to funnel resources to communities facing similar problems. With the decline of federal resources, most of these regional units have disbanded. A different form of substate regionalism, however, is now appearing in rural areas in some states and in Canada. Rather than delineating regional boundaries and compliance requirements at the

state or regional level, multicommunity alliances are emerging on a voluntary basis and focusing on common needs and interests. Participating communities share in the delineation of the alliance's boundaries and the rules for making decisions about alternative courses of action (Borich and Foley 1991).

Honadle (1980) defines three types of intercommunity cooperation as an administrative tool by which rural communities can expand the resources available to provide public services. One type of interlocal cooperation involves the operation of jointly-owned facilities, such as parks, recreation centers, multijurisdictional landfills, and police dispatching systems. Another general type of cooperation is the mutual aid agreement. This is used when two or more areas assist one another in providing a needed service, such as firefighting and police protection which may require additional personnel and equipment in times of emergencies.

A third type of cooperation is the purchase of services from one community for use in another. Agreements between communities may be rigid and formal or flexible and informal. Transactions may involve the exchange of public services, money or both. Interlocal cooperation may involve one or any number of discrete services contained in a package.

The conventional wisdom is that rural communities will not cooperate for fear of losing their identity. In a survey of rural local government officials in Iowa, however, Ryan (1986) discovered that understanding how to cooperate was the single greatest barrier to cooperation, greater even than loss of identity. A leadership development program in Iowa called "Tomorrow's Leaders Today" (TLT) is intended to promote the value of cooperation as well as to provide guidelines and to build skills in cooperative behavior (Borich and Foley 1991).

Baker (1990) points out that cooperation should be based on two important premises: first, that the autonomy of local communities should be maintained to the greatest degree feasible, and where possible, strengthened. Second, that the fundamental role of local government should be facilitated and its authority should not be threatened. Where these matters are neglected, the potential for intercommunity cooperation is put at serious risk.

More information and education are needed to help make cooperation a positive value in rural areas, as compared to the norms of competition and conflict. Competent leadership, as Baker suggests, is an essential factor to ensure success. As the mediators of intercommunity roles, community leaders need to understand how to facilitate the opening of community boundaries to positive influences from outside; to understand how their economies and social patterns are fundamentally tied to the economies and social patterns of the larger community, and how they can best maintain their autonomy by taking advantage of their interdependencies.

Micro-regional communities raise many research questions in terms of whether they offer a viable alternative to providing, financing and managing rural public services. Questions are raised as to the circumstances under which they work, barriers to their effectiveness, and the costs involved (service quality, community identity, political costs,

financial expenses). Although it may be desirable for intercommunity cooperation to emerge from rural communities themselves, an important research question, is: will such cooperation be more likely to occur with encouragement, incentives and financial support from state and federal governments?

Summary

This paper has attempted to highlight the need for additional research in the area of local decision making and management of rural public services. The many changes of the last decade have created increased pressures on local governments. Little is known, however, about how governments are responding and the effects of their responses on rural public service delivery.

Most research to date has focused on urban situations using urban models and data. Such research contributes little to the understanding of rural communities where the situation is vastly different. New questions and new modes of analysis, which are more directly geared toward rural social, economic and political contexts are needed.

Community Social Organization and the Coproduction of Public Services in Rural Areas

David J. O'Brien

Federal and state fiscal deficits, as well as the likely further decline of rural political power in state and national legislatures, suggest that additional resources for rural communities from outside sources may actually diminish in the future. Therefore, a major task for applied research on rural development is to identify ways to more effectively meet rural public service needs without depending on additional expenditures from government sources.

This paper describes a theoretical approach to identifying ways in which the social infrastructure or social organization of rural communities may become more effectively involved in public service provision, thereby realizing improved quality for rural consumers and cost savings for taxpayers. The focus of the approach is on the *joint* contributions of rural community informal social networks (i.e., the informal social relationships of "helping networks" that involve family members, friends and neighbors), rural community voluntary associations (e.g., churches and service organizations) and public agencies (e.g., health, mental health, income maintenance, and services for the elderly) to the *coproduction* (Rich 1981) of services for rural households.

The Coproduction Approach

Researchers have observed that the social organization of families and communities plays a critical role in the delivery of most public services. The phrase that best captures this relationship is, "the coproduction of public services." The assumption here is that without at least some minimal level of cooperation between ordinary citizens and formal service providers, most public services will not be provided very effectively (Rich 1981, Whitaker 1980). Rich explains:

> . . . most public services have the characteristic of being provided through a process in which the *combined* efforts of consumers and service personnel determine the quality and quantity of services actually available. Consumers of public services often act as coproducers of the services they enjoy . . . the effectiveness of drug abuse, family planning, nutrition, and similar programs depends as much on the efforts of clients to secure and utilize information as it does on the ability of program staff members . . . Similarly, citizens may act as coproducers of police services by being alert to and reporting suspicious events in their neighborhoods, cooperating with investigations of crimes, and organizing efforts to stop vandalism (1981:59).

Rather than seeing professionals and consumers as competitors, the coproduction approach recognizes that these two groups have different areas of expertise. In the coproduction of public safety, for example, it is clear that professionally trained police officers are best equipped to deal with violent criminals, but neighbors who have lived in an area for some time are best equipped to watch one another's homes and to identify strangers. In short, both types of skills are necessary in order to maintain a high level of neighborhood security (Ostrom and Whitaker 1974, Ostrom 1981).

Similarly, researchers have shown that resources placed directly into formal school settings may have very little impact on dropout rates because the crucial variables that either restrain or encourage dropping out of school rest primarily with the social organization of family, neighborhood and community. Coleman's (1988) research, for example, suggests that the inability of the United States to improve its human capital resources through a reduction in high school dropouts stems in part from a lack of *social capital,* which is defined in terms of a lack of social network supports for staying in school, not simply a lack of financial resources for the public schools themselves.

Alternatively, certain ethnic groups, such as Asian Americans, which have been extremely successful both in educational achievement and in creating successful small business, have enormous advantages over other groups because of cultural and social organizational mechanisms that generate very powerful social capital (see for example Fugita and O'Brien 1991, O'Brien and Fugita 1991).

This is not to say, of course, that funding for schools is adequate, but it does mean that perhaps some government resources would be more effectively used if they were directed toward strengthening the social organization of family, neighborhood or community (i.e., invest in social capital) than if they were directed solely toward the schools themselves (see for example Coleman 1988, Gephart 1989, Wilson 1991).

From a coproduction perspective, then, the central question, is: how do the contributions of professional and nonprofessional providers *jointly* influence the effectiveness and cost of a service to be delivered to an individual or household?

Measuring the Effectiveness of Coproduction

Measuring the effectiveness of service delivery is a very complex issue, but at minimum it involves some assessment of consumer preferences and objective needs. Since individuals have different tastes, as well as different burdens in areas such as health, housing, mental health or income, there is no *a priori* assumption that a given combination of inputs from public service providers or community social organizations will be more desirable than another. Rather, it is assumed that researchers should focus their attention on the consequences of different coproduction schemes for meeting the preferences and needs of different types of individuals and households.

As a practical matter, then, some individuals and families may be better able or have a greater motivation to assume a larger share of the burden of care for a particular service need. Other families simply may not have the resources and/or the desire to take on such a burden. Thus, in one instance where an informal social network is meeting the preferences and needs of a family, effective public service delivery simply may be to do nothing. In another instance effectiveness may be defined in terms of *supplementing* the services provided by a family social support network with, for example, respite care, which would alleviate some of the stress experienced by the family but which would not replace existing, intact, informal networks. In a third instance, effectiveness may be defined in terms of providing public service *substitutes* for a completely absent informal support system (Tausig, O'Brien and Subedi 1992).

Measuring the Cost of Coproduction

Measuring the total cost of a given coproduction scheme involves assessing direct and indirect costs of contributions or lack of contributions from nonprofessional and professional service providers. Oftentimes this means assessing what the costs to taxpayers would be if nonprofessional providers did not contribute to the delivery of a public service.

Informal social networks often provide *direct services* which otherwise would have to be handled by public agencies at taxpayer expense. One example of this type of assistance is the individual who provides her neighbor with a ride to the physician's office in another town. She is contributing to an overall health care service delivery system, although we typically do not think of that individual as a health care worker. We would, however, become very cognizant of this relationship if the individual does not have a neighbor to take her to the doctor and thus has to move to another community, perhaps to be placed in a more dependent situation with substantially increased costs to her family and/or the taxpayers.

By the same token, the friend who listens to another friend talk about his concerns is participating in a mental health social service delivery system. Again, we are likely to

become more aware of this relationship in the absence of the informal helper. Research shows that individuals who are most likely to experience long-term psychiatric problems also tend to have very limited numbers of persons in their social support networks (Grusky et al. 1985).

A less obvious, but no less important, role of informal social networks in public service delivery is to provide *bridges* (Granovetter 1973) between individuals in need of help and formal service providers. Quite frequently, for example, individuals learn about services from other family members or friends. Friends or family members who bring an individual to a health screening program, for example, may save the taxpayers considerable amounts of money by preventing a more serious debilitating disease from occurring.

In short, an important cost consideration in evaluating the total coproduction of public services for a community is the extent to which the presence or absence of informal community networks or household sources of support and information affects the total well-being of community members.

Coproduction and the Allocation of Resources

In the examples just cited, a coproduction approach would sensitize policy-makers to the long-run cost reductions of directing resources toward maintaining the informal support systems that provide direct and indirect services. On the other hand, there are numerous examples where the inadequacy of an informal system in providing either direct or indirect services might call for direct intervention by policy-makers in order to avoid the occurrence of longer-term costs in the future.

For example, a household may attempt to carry all of the burden for caring for a disabled family member even when the strain of that level of involvement is creating serious health or mental health problems for the family members who are caregivers. In the long-run, it may be in the interest of the state to encourage households in this situation to take advantage of respite care that would allow them to maintain their own health and mental health.

In the mental health literature, there is a concern that isolated, highly dense networks made up almost exclusively of kin will perpetuate the view that an individual and his or her family can handle all contingencies in life without outside assistance. Such a viewpoint can create a barrier between individuals and the service providers who could be of assistance to them (Granovetter 1973, Tausig, O'Brien and Subedi 1992, Mueller and O'Brien 1986). Some social support networks, for example, might foster beliefs that professional mental health workers are not to be trusted and thus prevent a seriously depressed person from receiving the help that may save his or her life (Grusky et al. 1985, Tausig, O'Brien and Subedi 1992).

The situation just described would call for quite different intervention strategies than those used in the examples cited earlier. In this instance, there may be a need to develop a strategy that would actively seek to alter the composition of the social support network, perhaps by finding ways to introduce new persons into the system in order to reduce the high degree of density and isolation of participants.

A Coproduction Approach to Rural Service Delivery

The coproduction approach is consistent with a long tradition of mixed governmental and private cooperative strategies for dealing with rural problems. This is seen, for example, in the Smith-Lever Act of 1914 which established the Cooperative Extension Service, whose mission was specifically defined as involving cooperative arrangements between government and private sectors of the rural economy. This act institutionalized the position of the *county agent* whose job included, in addition to providing technical information on agriculture obtained from Experiment Station research, working with local voluntary associations of farmers (Baker 1939). Mancur Olson notes that, "Many of the state governments decided that no county could receive any government money for a county agent unless it organized an association of farmers that would be evidence of an interest in getting more information on modern agricultural methods. These county organizations came to be called 'Farm Bureaus'" (Olson 1971:149).

One of the most difficult issues with respect to service delivery in rural communities today is whether traditional non-governmental sources of direct social service provision, as well as indirect mechanisms for linking individuals to public service providers, operate very effectively. Dillman and Beck (1988), for example, suggest that the increased ease of transportation and communication for rural residents has reduced the traditional dependence of rural households on one another. One of the most disturbing findings in the Heffernans' (1986) study of families who lost their farms during the farm crisis, for example, was that oftentimes the displaced families simply withdrew from friends and community voluntary associations rather than ask them for help.

The increased dependency and isolation of many elderly and single parent rural households may mean that some of the traditional social support mechanisms that worked effectively in the past to deal with direct and indirect services are not nearly as effective today. In turn, this may mean that policy-makers need to identify more precisely ways to provide additional support to those rural residents with social networks that are most vulnerable to new kinds of stresses.

Differences Between Rural Communities in the Effectiveness of their Coproduction of Services

Just as there are variations in the capacities of individual and family social networks to provide direct and indirect services, so too are there differences in the capacity of

communities to provide these resources. Warren's (1981) research in Detroit and Mueller and O'Brien's (1986) research in Akron, for example, showed that even among neighborhoods that were similar in socioeconomic characteristics, there were differences in their abilities to link individuals to formal agency service providers. In some cases, neighborhood friendship networks and voluntary associations provided a critical link between individuals and public service providers, while in other instances neighborhood social networks produced a formidable barrier between the individual and the outside world.

Similarly, there is reason to expect that rural communities will differ in their abilities and motivations to provide services for their residents or to link them to formal service providers. In some rural communities, a complex network of informal social support and formal voluntary associations provide direct services to those in need (Salamon 1989). Alternatively, other communities are more "atomistic" or organized within tight-knit strong-tie family cliques, leaving individuals and families to fend for themselves or to ask for direct assistance from formal agency providers (Erikson 1976).

Similarly, researchers have found that the social networks of leaders vary considerably from one rural community to another and that these differences have a substantial effect on the ability of leaders to develop bridges to resources outside of the community and to develop successful communitywide community development efforts. The development of linkages outside of the local community, which is a key element in rural development programs, depends to a significant extent on leaders finding ways of relating to their community that are not dependent on the maintenance of highly dense isolated networks (O'Brien and Hassinger 1992).

On the other hand, a key element in developing successful concerted efforts within the local community is the presence of long-standing cooperative social networks linking leaders to one another (O'Brien et al. 1991). Moreover, both external and internal social network linkages are affected by the background characteristics of leaders, such as gender and number of years they have lived in the local community (O'Brien and Hassinger 1992, O'Brien et al. 1991). Additional research is needed to fully answer the question: How do the social network characteristics of leaders affect the overall coproduction of services at the local level?

Allocating Resources in Rural Communities

As noted earlier, an important value of research on informal and formal social organization at the individual, family and community levels of analysis is that it offers policy-makers strategic points of intervention in an overall service delivery system. At one level, this may mean empirically identifying ways to support or strengthen existing informal networks so that they continue to deliver direct services. An example here might be identifying the need for a support program for individuals who are providing direct services to a disabled family member, but who are currently experiencing a great deal of stress due to their social isolation (Tausig, O'Brien and Subedi, in press).

At another level, however, data may show that adjustments in traditional patterns of social organization will have to be made if needed services are to be produced. One example of research findings leading to a very effective rearrangement of relationships between local social organization and a public service bureaucracy in order to provide a more effective service to consumers, is the Missouri 1440 program. Drawing on research on the difficulties of getting farm families in crisis to seek professional help (Heffernan and Heffernan 1986), the Missouri 1440 program developed some innovative ways of linking traditional aspects of rural social organization to professional mental health service providers.

The initial thrust of the 1440 program was to place mental health case workers in county extension offices. The assumption here was that individuals in need of mental health services may be very reluctant to be seen entering a mental health clinic, but would not be so intimidated if they could be visiting the county extension office and thus, indirectly *and more discreetly,* receive mental health counselling. Following these initial successes, the Missouri 1440 program began work on improving the coordination between the efforts of local public service delivery systems, local voluntary associations, and *influential individuals* through the development of the position of "rural service coordinator" (O'Brien and Whitehead 1990).

The preceding examples illustrate that the coproduction perspective is compatible with a wide variety of solutions to the problem of more effective public service delivery in rural communities. The central point is that by focusing on the measurement of the *joint* impact of services provided by public and private providers, policy-makers will have at their disposal empirical data with which to make informed judgements about more effective and equitable allocation of resources.

At this juncture, the critical task for researchers in the rural social sciences is to begin the process of developing a comprehensive data base and a model for understanding the present state of the coproduction of services in rural communities.

A Strategy for Studying the Coproduction of Services in Rural Communities

The first step in properly understanding the present as well as future role of rural social organization in the delivery of public services to rural communities, is to identify the helping networks which different types of rural residents depend on either apart from, or in addition to, public service agencies. This would produce a profile of the social organization of the local community from the point of view of individuals and households.

A substantial literature has shown that the social composition of individuals' day-to-day helping networks varies substantially in size, density and social composition. By and large, personal social networks in rural communities tend to be somewhat different than personal social networks in metropolitan areas, with the latter containing higher

proportions of kin and having higher densities (see for example Fischer 1982, Marsden 1987). A recent study, however, shows that there are important regional differences that tend to cut across rural-urban differences. There is, for example, less difference between the social networks of persons in smaller and larger places in the Midwest than in other regions of the country (O'Brien, Hassinger and Dershem 1992).

An important research task is to identify how social network characteristics are influenced by age, household composition and financial resources. This includes, for example, the extent to which individuals have greater or lesser numbers of persons in their social support networks, the density of their networks (i.e., the extent to which people know one another), the extent to which such networks consist of kin, friends, neighbors, or persons from other communities, and the extent to which individuals are connected to voluntary associations, such as churches, which may be potential sources of assistance in time of need.

There remains, however, a need to examine the question of whether social network characteristics, voluntary association involvement patterns, and sense of community integration differ from one rural area to another. There is, for example, the question of whether the social support networks of older residents in commercial agricultural areas of northern Missouri or Iowa, who in many cases have been left behind as younger people have moved out of their communities, are different than those of some older residents in retirement/recreational areas, such as the Ozark region of Missouri, who are retirees who have voluntarily moved into the area. Also, how do the different densities of population in the west North Central region, compared to the east North Central region, affect social network composition of rural residents?

The second phase in developing an empirical base with which to understand coproduction processes in rural communities is to develop multivariate statistical models that can identify the joint impact of a rural household's social networks, voluntary association involvement, and use of public services on the mental health and quality of life of household members.

The central issue in this phase of the inquiry is, given a certain level of need or burden within a household, to what extent does that household's social network affect: (a) its preferences and ability to provide direct services in lieu of public services, and (b) its ability to provide a bridge to public service providers?

Having identified different types of rural household social networks in phase 1, an attempt will be made to identify the extent to which these different types use public services as supplements or substitutes for their own resources or the extent to which they may avoid using public services altogether. The crucial issue is the impact of the household network, *given a certain level of service need.* In addition to examining the role of household networks in the provision of direct services, the research will also be concerned with their impact as bridges or barriers to public agencies. The latter is defined largely in terms of the impact of network characteristics on the provision of information about the availability of public services.

The final task in this phase of the inquiry is to identify the *indirect* effects of household social networks on mental health (Lin, Dean and Ensel 1986) and quality of life (Campbell, Converse and Rodgers 1976) through their impact on the coproduction of public services. Given a specific level of household need or burden, to what extent does the provision or lack of provision of direct services or bridging to public service agencies affect levels of stress and sense of well-being in the household? Multivariate analysis dealing with these issues is currently being conducted in the Missouri Rural Community Viability Project.

Conclusion: Measuring the Effects of Alternative Models of Service Delivery in Rural Areas

The preceding papers suggest some specific lines of research that will contribute to a more accurate assessment of the current state of service delivery in rural areas, as well as provide strategies for intervention to improve the availability, access and cost-effectiveness of rural service delivery systems. This research, in our view, should proceed along three levels: (1) analysis at the individual level, (2) community and area-wide analysis, and (3) analysis of the financing of alternative rural service delivery systems.

Individual Level of Analysis

The first research objective at this level is to assess *individual and household preferences* for different mixes of *coproduction* of services in different service areas. The critical issue is to determine what *consumers* with different resources, socio-demographic characteristics, and social capital see as more or less desirable in terms of the participation of formal and informal providers in the joint coproduction of a service. Research along these lines is especially important in determining what kinds of public agency involvement are likely to be supported by different segments of the rural population. Alternatively, what types of direct service provision or bridging to formal service providers would rural citizens like to retain as prerogatives of informal social networks?

The second task at the individual level of analysis is to accurately assess the total cost of the coproduction of services for individuals in rural areas. This means developing measures of the costs and benefits of inputs from informal as well as formal providers, both in terms of direct services and bridging to formal providers. This type of analysis will require the development of complex statistical models that will identify optimum solutions for various mixes of informal and formal service provision in terms of individual outcomes in different service areas. Again, measures of individual outcomes are expected to be based on consumer assessments.

A third task at this level of analysis is to identify the degree of public support in rural areas for different types of public service delivery, including the ways in which these delivery systems are linked to informal service provision. What types of incentives, for example, might induce households to increase their personal involvement in service delivery as part of an overall coproduction of a given service?

Community and Area-wide Analysis

The first task at this level is to accurately *map* the linkages (or lack of linkages) between informal social networks and public service agencies within communities and multicounty regions. To what extent, for example, do informal networks provide bridges between informal providers and public service delivery systems? To what extent are there gaps between the informal networks and public providers? What are the linkages between public providers in different communities in an area? The latter will provide empirical data to identify where the cracks in the overall coproduction system lie and which types of individuals are most likely to fall into them. The assumption here is that the maps of social service delivery systems from the point of view of the rural consumer will be different than the kind of maps (e.g., catchment area) produced by public service professionals).

The second task at this level of analysis is to identify the resources, information systems and personnel skills required for a coproduction system to become a viable alternative for delivering a given service to a rural community and region. This will require a careful assessment of informal social network, voluntary association, and public agency capabilities, linkages and gaps within a rural community and region.

A third task at this level of analysis is to identify the types of incentives that might induce key groups in the local area, such as voluntary associations, to increase their involvement in the coproduction of a service.

Research on Financing Alternative Rural Service Delivery Systems

The first task here is to develop empirically-based models of the *total* cost of the provision of services for different-sized communities and regions. Of particular importance is the need to incorporate in public finance models estimates of the true cost of the coproduction of services, which means including cost estimates of the direct services and bridging services provided by informal social networks, voluntary associations and other parts of the local rural community institutional structure.

Second, there is a need for research to identify the per capita costs of different types of coproduction mixes in portions of rural regions that have higher or lower population

densities and that are closer or farther away from metropolitan centers. Cost estimates of the efficiency of different mixes, for example, may differ a great deal between the east North Central and the west North Central regions.

Third, there is a need to develop a comprehensive empirical basis for a revised Central Place Theory and Functional Economic Area Analysis that incorporates changes in demographics, transportation and retail marketing which have occurred in recent years.

A fourth research task is to assess the impact of different mixes of coproduction of services and different spatial arrangements for delivering services on overall economic development indicators.

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Iowa State University
of Science and Technology
216 East Hall
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(515) 294-8321

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